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ABSTRACT

The selected readings in this anthology deal with the Quality of Life (QOL) concept in general as well as from the more specific perspectives of environment, economy, society, and psychology. The articles represent varying approaches and levels of consideration, and were selected to serve as a general briefing for participants in the Quality of Life Symposium sponsored by the EPA. The objective of the symposium was to explore the QOL concept, to define QOL in terms of its components, and to develop suggested quantitative approaches to its use in guiding public policy. The articles are classified under the following five topics: 1) Defining "Quality of Life" Measures -- the State of the Art; 2) The "Quality of Life" Concept; 3) QOL: Environmental Perspectives; 4) QOL: Economic and Social Perspectives; 5) QOL: Psychological Perspectives. As this anthology was prepared as a general briefing rather than a review of the literature, a list of suggested readings is included at the end of the work. (FDI)

ED 069600

AN ANTHOLOGY OF
SELECTED READINGS
FOR THE SYMPOSIUM ON

THE "QUALITY OF LIFE" CONCEPT

A POTENTIAL NEW TOOL FOR DECISION-MAKERS

August 29, 30 and 31
At
Airlie House
Warrenton, Virginia

SO 005 198

Sponsored by
The
Environmental Protection Agency
Office of Research and Monitoring
Environmental Studies Division

PREFACE

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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PREFACE

The National Environmental Policy Act mandates the Federal Government to take action:

> . . . "in protecting and enhancing the quality of the Nation's environment to sustain and enrich human life"

Improving the "quality of life" has become an increasingly urgent national goal that is commanding the attention not only of environmentalists, but also of economists, sociologists, psychologists, administrators, and others at all levels of government and in many areas of the private sector.

Major programs have been launched to improve the quality of life of Americans. A massive commitment of funds has been made in the name of that goal. Daily, governmental decision makers are establishing policy and programs, and allocating resources in ways that significantly impact the quality of life of different types of people in different ways.

And yet, the concept that inspires this activity, remains largely undefined. While there is increasing recognition that the concept of quality of life involves complex interrelationships and tradeoffs among economic, social, and environmental considerations, the means of dealing with these factors, as yet, elude us.

The Environmental Studies Division, Office of Research and Monitoring, Environmental Protection Agency is making an effort to improve the tools available to decision makers who are necessarily involved in "quality of life" delivery systems. This effort includes sponsoring a symposium on the subject "The Quality of Life Concept--A Potential New Tool for Decision Makers." The symposium is being held at Airlie House in Warrenton, Virginia on August 29-31, 1972. The objective of the symposium is to explore the "Quality of Life" (QOL) concept, to define QOL in terms of its components, and to develop suggested quantitative approaches to its use in guiding public policy.

This anthology which is also part of the EPA effort presents some background perspectives for the consideration of the participants prior to the symposium. The selected readings deal with the QOL concept in general as well as from the more specific perspectives of different disciplines--environmental, economic, social, and psychological. The articles represent varying approaches and levels of consideration and were selected to serve as a general "briefing" for participants rather than as a review of the literature in the field.

The development of the quality of life concept into a form decision makers can use is a necessary part of the effort to carry out the policy declared in the National Environmental Policy Act:

> "to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans"

THE QOL CONCEPT
SYMPOSIUM PLANNING GROUP

CONTRIBUTORS

John Abbott, Executive Director, California Tomorrow
Harold S. Becker, Director of Programs, The Futures Group
Alfred Heller, President, California Tomorrow
David Holtz, Staff Officer, National Academy of Sciences
Kenneth F. Hornback, Research Associate, EPA Fellow
Lester Lees, Director, Environmental Quality Laboratory,
    California Institute of Technology
Mancur Olson, Professor of Economics, University of Maryland
Guy J. Pauker, Research Associate, Environmental Quality Laboratory,
    California Institute of Technology
Robert W. Shaw, Jr., Project Scientist, Booz, Allen Public Administration
    Services, Inc.

ENVIRONMENTAL PROTECTION AGENCY

Stanley M. Greenfield, Assistant Administrator for Research and Monitoring
Leland D. Attaway, Deputy Assistant Administrator for Research
Peter W. House, Director, Environmental Studies Division
Philip Patterson, Deputy Director, Environmental Studies Division
John Gerba, Chief, Exploratory Research Branch
Alan Neuschatz, Chief, Environmental Management Research Branch
Martin Redding, Chief, Ecosystems Research Branch
Kathryn Cousins, Urban Planner, Environmental Studies Division
Robert Livingston, Research Analyst, Environmental Studies Division
Albert Pines, Operations Research Analyst, Environmental Studies Division

QOL CONFERENCE COORDINATORS

Edward L. Bartholomew, Senior Associate, Booz, Allen Public Administration
    Services, Inc.
Edward F. R. Hearle, Vice President, Booz, Allen Public Administration
    Services, Inc.
Margo A. Moore, Administrative Assistant, Booz, Allen Public Administration
    Services, Inc.
Mary B. O'Brien, Consultant, Booz, Allen Public Administration Services, Inc.

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I. DEFINING "QUALITY OF LIFE" MEASURES - THE STATE OF THE ART

DEFINING "QUALITY OF LIFE" MEASURES -

THE STATE OF THE ART

The quality of life in America has in recent years become the subject of increasing and widespread concern. This concern is being expressed in terms of a number of diverse perspectives. Life style groupings such as affluent youth, ghetto youth, the poor, the feminist movement, the aged, and blue collar workers view "quality of life" in terms of their particular values and life experience. Different disciplines such as economics, sociology, environmental sciences, and psychology--have tended to approach the issue of "quality of life" in terms of their respective characteristic perspectives.

As society attempts to respond to quality of life concerns, it confronts the interrelated and often conflicting group values from different interdisciplinary and multidisciplinary approaches.

The "quality of life" (QOL) concept has received increasing attention as the focal point of converging economic, social and environmental considerations. Serious attempts are being made to develop the concept into a useful tool for decision makers in the public and private sectors. This has involved attempts to:

- Define the concept in terms of its constituent components and factors
- Develop indicators to measure the state of each QOL component for a given demographic group or geographic entity
- Relate the indicators to relevant quality standards and aggregate them into a single QOL index or at least into a set of weighted multiple QOL indices, and finally--
- Relate an overall QOL concept and QOL quantification techniques to the policy and program decisions of government

This document is an attempt to summarize the current state of the above efforts. The following sections discuss: the history of attempts to define and quantify "quality of life"; the state-of-the-art from the perspectives of different disciplines; and considerations related to varying life styles and socio-economic population groupings. The problems involved in measuring QOL are also discussed.

ATTEMPTS TO DEFINE AND MEASURE QOL

For many years, economic indicators such as the Gross National Product and the Consumer Price Index have been the primary measures of "progress" available to decision makers. Increasingly, however, decision makers are being challenged to produce change that improves the "quality of life" in a social as well as an economic sense.

Historically, attempts to define and measure "quality of life" have focused primarily on social indicators. Significant efforts in the field of social indicators date back before 1897 when Emile Dur-Rheims monumental study, Suicide was published. Later in 1939, E.L. Thorndike in Your City used thirty-nine different indicators to produce a "general goodness" index. The index was used to evaluate conditions in a number of American cities.

The concept of social indicators as a tool for social change gained momentum in the late 60's. A growing body of literature opened new chanels for discussion and growth in this field. Significant works on the subject appeared in two monographs, Toward a Social Report,[1] published by the Department of Health, Education and Welfare in 1969 and later Toward Social Reporting: Next Steps[2] by Otis Dudley Duncan. These joined other notable works in the literature including: Social Indicators edited by Raymond Bauer in 1966; Social Intelligence for America's Future[4] edited by Bertram Gross in 1969; and Indicators of Social Change[5] edited by Eleanor B. Shelden and Wilbert E. Rose. A recent book, The Human Meaning of Social Change[6] by Angus Campbell and Phillip Converse has added new insights especially as to the social psychological aspects of the problem.

In an era of urban planning and development, a number of important studies have been conducted in major metropolitan areas regarding the quality of life within the urban environment. A recent study undertaken by the Urban Institute of "The Quality of Life in Metropolitan Washington, D.C." was published in 1970. The study used twelve indicators to make comparisons between eighteen large urban areas.

An ongoing study of New York uses urban, economic, social, environmental and some general indicators to measure the quality of life. Major categories for which indicators have been developed on the studies of New York and Washington include:

- Income
- Unemployment
- Poverty
- Housing (costs)
- Education
- Health
- Mental Health
- Environmental Quality
- Public Order/Crime
- Traffic Safety
- Racial Equality
- Community Concern
- Revenue/Taxation
- Welfare and Social Services

These studies were directed at urban decision makers.[7a, b, c]

Another current effort of significance is a two-year study by the Survey Research Center, Institute for Social Research of the University of Michigan. The primary objectives of the study are to develop a valid and efficient way to measure the range of life qualities and to learn something about the key factors contributing to a better life as understood by a representative sample of the American public. The research effort is supported by the National Science Foundation.

The Michigan team will measure the relevance of a particular concern to an individual, the individual's expectations with regard to that concern, and the individual's conception of change--past, present, and future. The examination of the effect of changing perceptions over time is of considerable importance in arriving at a quality of life index useful to government policy-makers.

The National Wildlife Federation has developed an environment quality index which is based on weighted percentage values for seven factors: soil, water, air, living space, minerals, timber and wildlife. An "E.Q. Index" has been published annually since 1969. The E.Q. Index represents an important step towards an inclusive quality of life index.

The growing concern in the U.S. for identifying the components and measures of quality of life have led to a number of recent conferences. An example was a symposium arranged by Dr. Fred S. Singer of the University of Virginia entitled: "Can We Develop An Index for the Quality of Life?" The symposium addressed the feasibility and methodology of developing an index for quality of life. The issues discussed included: the components of quality of life; the measurement of identified components; the handling of non-qualifiable components; and the conversion of national income aggregate such as GNP into an index for quality of life.

The expanding concern with quality of life has led to an increasing interest in the tools of measurement within the U.S. Government. The Office of Management and Budget is currently compiling a document for publication in 1973, tentatively entitled Social Indicators. The purpose of the OMB effort is to present available statistics to facilitate an understanding of social conditions and change in the U.S. There is little agreement on one general instrument of measurement. Nevertheless, a consolidation of current information in the field of social indicators is considered useful as a first step in developing the QOL concept as a potential new tool for decision makers.

PERSPECTIVES OF DIFFERENT DISCIPLINES

Attempts to measure societal conditions have been undertaken from the standpoint of several major disciplines including economics, sociology, psychology, and the environmental sciences. Each has its own understanding of how values and ideals should be defined and manifested in the laws, norms and sanctions of society. The crucial concern regarding quality of life cannot be adequately evaluated, without an understanding of these various values perspectives.

The Economic Perspectives

Since Copernicus and Descares, Western man's thought has tended toward that of a mechanical universe which can be experienced and measured scientifically. Anything which could not be measured scientifically was either ignored or viewed with suspicion. Building upon these thinkers, Bentham created the economic principle of the greatest good for the greatest number, not recognizing that human nature is more complex than the simple summation of pleasures and pains. The most ardent school of positivist economics is identified with Milton Friedman. This view draws a distinct line between positive or purely scientific economics and normative economics concerned with social goals. This school does not consider values to be necessary for any positive analysis of economic questions.

For economists in general, the methodology has emphasized quantity as opposed to quality. The stress has been on technical analysis, concentrating on input-output studies, econometrics, operations research, game theory, and linear or mathematical programming. The knotty problems of human action and behavior have not been addressed to any great extent. Economics has paid little attention until recent times to the fact that such concepts as production and distribution, goods and services, commodities and performances, are related to the human actors who control them and who, in part, are controlled by them.

The concept of economic indicators as instruments for controlling economic fluctuations and maintaining economic growth was nurtured by the depression. Economic prosperity became the major measure of the overall well-being of societies and nations. In Agenda for the Nation,[8] the Brookings Institution characterized the trend as: "prosperity as a solvent of social ills has been a chimera -- that GNP has turned out to be a small god."

Widespread social unrest and the questioning of the legitimacy of certain traditional institutions stimulated a major reexamination of socioeconomic, environmental and behavioral phenomena in other than the economic context.[9]

The Social Perspective

Sociology has provided a number of useful lenses through which the quality of life concept may be viewed: class, race, ethnicity, values, matters of "ultimate concern," etc. Many policy analysts and decision makers often forget that their backgrounds as to race, ethnicity, life style, etc.--their value base--greatly influences their "scientific" approach to the development of indicators that will measure the quality of life.

The sociologist has brought to our attention the fact that contemporary man is the first to be provided with discretionary leisure time. Is it a blessing or a curse? For those without the resources to engage in the activities they desire, it is often seen as a curse.

We can measure the importance of leisure time by quantifying the leisure time available and the participation levels in various leisure-time activities, but such quantification does not measure resultant levels of satisfaction or well-being.

To generalize, the sociologist can be said to approach the quality of life concept from a group, institutional or societal perspective, whereas the psychologist approaches it from the personal or individual perspective. Nonetheless, the sociologist would still have to ask whether we should approach the question, "what is life all about?" collectively or individually. The sociologist also provides a long list of questions directly related to methodologies for measuring the quality of life. The sociologist might ask: How do people make sense of and define reality? What "ought to be" (normative) and what "is" (cognitive)? How do religious norms relate to economics? What is the place of motivation? What is the relationship between people's actions and their normative expression? How do differing sets of collective consciousness relate to each other in an overwhelmingly pluralistic society? How does the matrix of norms and interests effect people's behavior, both as citizens and as policy makers/analysts? Is there a balanced view of reality through which a comprehensive explanation of human experience can be made by both individuals and society as a whole? How does one approach the ultimate meaning of human experience with all the subtle complexities of human conduct?

Thus, in attempting to measure the quality of life, the sociologist is at the forefront of the development of social indicators which accomplish this measurement. In developing such social indicators, the sociologist must address the fact that society is a community of individual and collective meanings. These must be taken into account and quantified. In the attempt to quantify quality of life through social indicators, the results often suffer from confusion between ends and means (or output and input) and the distinction between the two which is often ignored.[10]

However, even the term "social indicator" is yet to be fully defined, conceptually or theoretically, although all would agree that it represents some measure of well-being or "quality of life."

The debate in which sociologists find themselves centers upon whether the demands for social information can be made relevant to public policy decisions. On one side of the debate are those who would use such indicators to help establish social goals and priorities, to evaluate public programs, and to develop a system of social accounts for providing guidance among alternative interventions. The other side of the debate is simply that such cannot be done.

The Psycological Perspective

In The Human Meaning of Social Change,[6] Campbell and Converse devote a chapter to "Aspiration, Satisfaction, and Fulfillment." Certainly, these terms convey the full force of the meaning of "quality" for modern life. Campbell and Converse discuss quality of life from the standpoint of personal experience, which means frustrations, satisfactions, disappointments, and fulfillment all from the eye of the beholder. They assume that "satisfaction and dissatisfaction are experiences that most people can report with reasonable validity". Campbell goes on to say that,"The revolution of rising expectations will go beyond the demand for better housing and cleaner air to the requirement of a fuller life." But how is this state to be achieved, let alone measured? Campbell does not answer this question.

One of the difficulties in discussing the quality of life is that little is known about the relationship between attitudes and behavior. The discipline of psychology addresses this relationship. Many of the methodologies used to explore the relationship between attitudes and behavior involves hierarchy of needs theories. The most famous is that of Abaraham Maslow presented in "Motivation and Personality".[11] Maslow approaches the perspective of individual needs and values with a well developed five level (or stages) "needs hierarchy." The five levels in ascending order are: physiolocial (or survival); safety/security; social, ego; self-fulfillment (or self-actualization).

A more recent theory is the eight level open ended theory of Clare Graves.[12] For Graves, the turmoil (personal, organization, nation-wise) is due to the transition process of moving from one "need" level to another.) A difficulty with the Maslow scale is that at the highest level, self actualization, the theory cannot be applied to organizations--only to individuals. The Graves approach can be applied to both.

Maslow is actually a positivist, for, with the last level, one has "arrived" and there is no more development. Graves, on the other hand, sees the situation in different terms: that growth and development are endless, open, and continuous. Also, with Graves it is not necessary to attempt to achieve the top level. This is important in discussing quality of life, aspirations, satisfaction, happiness, etc. The Graves theory, then, becomes not a standard by which one compares oneself in the drive to "the top," but rather a tool to enable people to better manage their relationships with others. The same would apply to organizations, institutions, nations, etc.

A person's or organization's level can be discovered through a series of questions, the answers to which provide the indication of level. The potential ramification of Graves' theory in the area of measuring quality of life is enormous.

Because survival needs have been met by the vast majority of the population, it is the higher needs that dominate in our affluent society. This often appears in the frantic search for new goals, heroes, and purposes, with which to, in Toffler's phrase, "cope with the future." Pervading most people's quest for their vision of "quality of life" is a sense of meaning, of individual worth, a feeling that their lives are significant, a sense, therefore, of personal satisfaction and fulfillment, and the knowledge that personal growth can continue.

The Environmental Perspective

The environmental sciences attempt to integrate the knowledge of the physical sciences with the perspectives of economics, sociology, and psychology. The environmentalists attempt to relate the environment and the impact of man-made changes to the quality of life.

A number of social concerns can be identified when approaching the environment from the perspective of quality of life: the continued support of man by the ecological systems as we know them today; the availability of suitable land, particularly for agricultural and recreational use; and an adequate supply of air and water in suitable quality to support all forms of life. Included in these categories would be wildlife, areas of natural beauty, and recreation areas. It is difficult, given the present state of the art, to interpret these environmental indicators in terms of human welfare.

Certain indicators of quality of life can be cited as possible beginning points in determining environmental quality in terms of human welfare: the extent of air pollution and the number and percent of persons experiencing air pollution at levels hazardous to health (including the level of pollutants in the air of a given area by type); a comparison of different areas in terms of air quality; the number of polluted bodies of water and the number of persons living within certain radii of the polluted bodies; the numbers of bodies of water and percentage of given rivers and streams in terms of specified pollution levels hazardous to health.

The mandate spelled out by the National Environmental Policy Act not only relates the environment directly to the concept of quality of life but also provides for the Federal Government to exercise leadership "in protecting and enhancing the quality of the Nation's environment to sustain and enrich human life." In so doing, the Council on Environmental Quality was authorized to "promote the development of indices and monitoring systems...to determine the effectiveness of programs for protecting and enhancing environmental quality." The dependence of man's quality of life on the quality of the environment is made quite clear in the statement exhorting all levels of government to "promote the general welfare, (and) to create and maintain conditions under which man and nature can exist in productive harmony."

However, without the effort being made to raise the quality of life of all people, no harmony can be possible between man and environment. People cannot be expected to be concerned about either cultural enrichment or the aesthetic values of their surroundings if their quality of life does not fulfill the basic needs, wants, and desires for food, shelter and clothing.[7]

A wide range of policy issues, both domestic and international, that relate to the environment may well be determined by considerations based on what man considers an adequate level of quality of life. For instance, a major build up of carbon dioxide in the atmosphere could seriously alter the world's climate by creating a "hot house" effect. Although Americans consider an automobile a part of their quality of life, exporting this ideal of quality to China, with its 800,000,000 people, could be inimical to the quality of life due to the potential carbon dioxide emissions that would result.

Another consideration involves the food chain. Will the dumping of wastes in the oceans, plus the world-wide distribution of mercury in the various water ways getting into the fish, seriously endanger the biosphere and the eco-cycle? What will be the effect of unrestrained population growth: starvation, disease, catastrophic war? How can we measure, in advance, the potential danger to the environment, and thus to man, of massive oil spills, whether in the oceans, lakes, or northland tundra? How will environmental policies which effect: population distribution; conservation of water resources and wilderness areas; use of coastal land areas; wildlife; thermal pollution from power and processing plants; air pollution from moving sources of emission; materials recovery and solid waste management; the use and residdue of persistent chemicals, and so on enhance the quality of the environment and in turn the quality of life of human beings.

Of vital interest to all concerned with the environment and the preservation of life, is the linkage between certain environmental factors and the factors relating to man's sense of what represents for him quality of life.

Joseph L. Fisher, President of Resources for the Future is concerned about the more subjective problems of individual and social welfare that must be taken into account in establishing goals and indicators for environmental quality.[13] He notes that most "environmental-quality indicators" in use

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NOTE: Thor Hyerdahl stated that in the Ra, not a day passed when they did not have to "battle" the debris they encountered, which was opposite of the experience of crossing in the Kon Ti-Ki 20 years earlier.

in the late sixties were not directly relevant or meaningful for social welfare as most people think of it. He suggests that perhaps the basic indicator for social welfare should be one dealing with "net social benefits" (ie., benefits minus costs or losses in some sense) that would result from selected interrelated measures to achieve acceptable levels of water or air quality. He calls for environmentalists to engage with social statisticians, medical scientists, industrial, agricultural, and sanitary engineers, economists, sociologists, administrators, and others, in research and development on indicators of the various environmental trends regarding pollution and their effect on people.

PERSPECTIVES OF DIFFERENT LIFE STYLES

Each life style grouping whether made distinctive by class, age, interest, economic level, education, or a combination thereof, tends to define "quality of life" in different terms than others. Each has its own value base. Such differences are heightened by demographic and geographic considerations. Add to these life style considerations, the pluralism of American society and the challenge of creating acceptable quality of life measures becomes readily apparent. Such diferse interests and view points can best be illustrated by concentrating, for the sake of illustration, upon some of the major categories of class and stage in the life cycle which influence the various definitions of "quality of life." Such categories are discussed in this section and include: youth and the aged; racial and ethnic perspectives; blue collar and white collar workers, the poor and the affluent.

Youth and the Aged

The contrast between youth and the aged in a country that worships youth can be felt in the phrase often used for oldsters: the "unwanted generation." As more and more programs are developed to cater to the young, the elderly are gradually, but continually being devalued and excluded. Youth in the student movements of the West have played increasingly important cultural and political roles, particularly in the past decade (in contrast to the diminishing role played by the elderly).

The term "youth culture" is a term that has gained currency only during the past decade.[14] Today the term has connotations not only as evidence of the massive opposition of youth to the social-cultural status quo, but also as the harbinger of the future society. These latter views can be seen in such works as Kenneth Keniston's The Uncommitted, Theodore Roszak's The Making of a Counter Culture, and Charles Reich's The Greening of America. Little such attention is paid the elderly.

Yet both groups are remarkably alike. Both groups are at the extremes of the age pyramid, are largely unemployed, introspective, bodies and psyches in greater process of change, and heavy users of drugs. Time is an obsession with both groups. But where youth is worshipped, the aged are avoided. The aged are treated as a "lower class" while youth are treated as an "upper class." After racism and sexism, the latest, rapidly growing "-ism" is age-ism.

The implications for social indicators of quality of life are significant. We now have the irony of medicine enabling people to live longer at the same time technology has made them non-productive. As this is the first time a society has had to deal with so many aging, there are no models to follow. The work in quality of life indicators may well help to focus the problem of the aged more clearly in the future. Certainly, despite the similarities between the young and the elderly, what each would view as satisfying, producing of well-being, and contributory to their quality of life would differ considerably. Such differences would include such life facets as music, entertainment, clothes, sexual practices, environmental conditions and environmental surroundings available for recreation.

Class, Race and Ethnicity

Two concepts significant to the discussion yet, highly confusing, are those of "class, and "race and ethnicity." Whether one discusses location of various economic housing groupings, educational transportation policies, or quota systems for job hiring and school admission, both concepts are relevant. Of the two concepts, however, class may be more relevant. Parents want their children to live in neighborhoods and go to schools with children of comparable class position. Rightly or wrongly, quality of life may be defined in part by partents as being able to shield their children from the social and cultural realities of lower-class life, which the parents may have experienced personally.[15]

Thus, for the different classes, an entirely different set of quality of life indicators could be necessary. The cultural differences between groups differing in socioeconomic status (and race) can be discovered by using value choices made in questionnaires given to people of different economic and racial groups. Rokeach and Parker[16] found that differences between the races disappeared when socioeconomic position is the same.

From the above we can speculate that differences between blue collar and white collar workers, between the poor and the affluent, are matters of class and status reflected by economic level. The implications for the complexity and difficulty in designing quality of life indicators is clear.

Life-style refers to the overall culture or way of life of different groups in the society. With significant differences existing between the life styles of different classes it is easy to conclude that different strata of people live in different worlds. How quality of life can thus be described for each world, particularly from the standpoint of the ability of that world to bring satisfaction and well-being to those within the strata, is a most complex and, to some, disturbing question. How, in measuring the differences in values of each of these life-style classes, (blue collar-white collar, poor-affluent) can diagnoses be made regarding what is right and wrong with American society and, hence, how can the formulation of viable policy alternatives be facilitated effectively and efficiently?

The next question that must be asked, regards the whole matter of whether well-being according to theories of needs hierarcy is to be measured materially or spiritually. Should indicators measuring assets, income, basic services, social mobility, education, political position, and status also measure satisfaction or both? This is a most difficult question facing those who would develop accurate and meaningful social indicators with which they can measure the quality of life.

MEASUREMENT OF QUALITY OF LIFE

"Quality of Life" (QOL) is still primarily a rhetorical notion, although it is voiced by a growing number of advocates from a variety of interests and concerns. No one has yet figured out how to measure this most elusive of concepts. The current literature,[17, 18, 19] however, makes it clear that the notion of QOL is deeply inbedded in the body of thought related to social indicators.

Indicators to date have been used almost exclusively for purposes of political or economic assessments and projections. The discussion regarding quality of life is concerned in part with how indicators can be developed which will measure the state, conditioning, changes and affects of the thought processes of people.

One of the difficulties in measuring quality of life as opposed to economic or production factors, is that there are no "social dollars" flowing throughout the system which can be counted at critical points. The social "system" has vastly different characteristics than the economic system. There are no social costs, prices, incomes, and the like to which most social variables can be converted given the current state of the art.

In considering measurement of quality of life, one must continually keep in mind that information and evaluation requirements will change through time. Evaluation criteria will change because values will change and knowledge will expand. Examples will help to clarify these points. The state of knowledge at the 1960 White House Conference on children indicated that children's welfare was enhanced most if the mother devoted full time to them. Thus, welfare policy directed aid toward mothers who remained home, penalizing mothers who were employed. This was more than a matter of economics. It was an attempt to encourage the single mother not to work. In 1972 we see a complete change: now the emphasis is being placed on day care centers so that mothers can work and not be home with their children.

The subjective and objective conditions of quality of life measures must be recognized and dealt with. By definition, objective conditions are empirical and reproducible. Heads can be counted or absolute scales can be applied. Census data and economic indicators deal with the objective. Quality of life indicators, on the other hand, may go beyond this and include the subjective. Subjective conditions or factors are not reproducible with certainty. They must measure feelings and attitudes. They must indicate the conditions and conditioning or "states of mind" of society and its citizens.

Quantitative methods can be used to determine the normative character of such information. For instance, averages, medians, modes, etc., through all the measure of central tendency, can be applied to determine how typical an attitude or value is among a given population or "universe." However, comparison of an attitude or value held by one person with respect to a different attitude or value held by someone else may not be valid.

Perhaps the measurement problem will not be eased until a grand theoretical structure is completed, utilizing not a multi-disciplinary approach but an inter-disciplinary approach. Necessary, however, is the condition of getting those representing the various disciplines to complement each other. The anthropologist is needed to provide solid cross-cultural pre-suppositions to the underpinnings of the exercise. The psychologist, usually more willing to tackle all-inclusive theories, is needed for his adventurousness. The sociologist is needed to apply his special imagination to the handling of ordinal and nominal data; the economist is needed too, for who is more at home with sophisticated model building and the use of mathematical techniques? The historian's adept extraction of the subtleties of meaning and the broader implications from textual material is needed. Political scientists are needed to provide a better understanding of the relationship between research and action. To truly grasp the handles on measuring quality of life, the contributions and benefits of the various disciplines must be recognized and utilized.

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II. THE "QUALITY OF LIFE" CONCEPT

MEASURING THE QUALITY OF LIFE

Richard D. James

Richard D. James is a member of the Chicago Bureau of the Wall Street Journal.

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MEASURING THE QUALITY OF LIFE

Richard D. James

A topic of continuing debate these days is whether the quality of life is improving or deteriorating. A vast range of issues now confronting us bears on the matter, from ecology to crime, from the youth culture to the Vietnam war.

The issue reaches business in the form of whether "more is better." Sicco Mansholt, president of the Common Market's executive commission, touched on it recently when he remarked: "I don't pay much attention to gross national product. In all our states this has been something sacred, but it's the devil. We must think instead in terms of the happiness of our people."

As with many complex issues, there's no yardstick to tell who's right. Are we better off? Certainly people are better educated. They have more leisure and better health. But we also have rising rates of crime and divorce and more people using drugs.

One wishes for some easy way to settle the matter, a clock, perhaps, that would count out human happiness, much as the clock at the Department of Commerce counts out our gross national product. Little wonder then that one finds more and more attempts to devise some such measure, a gross national happiness index, an index of the quality of life.

THE ECONOMIST MAGAZINE

The Economist Magazine of London took a stab at it not long ago. It compiled an index for 14 countries according to what it considered 15 important social indicators, including such things as car ownership, divorce, economic growth and the ratio of television sets and telephones to people.

If a high rate of divorce was considered to contribute to a better life, then the U. S. ranked first with an index of 457. Sweden ranked second with 336 and Canada third with 264. If divorce was counted as a negative factor, the U. S. dropped to fifth place with an index of 55. Canada was first at 338 and Sweden second at 226. A country's score in each category was its precentage above or below the average for all 14 countries. A country's overall index was compiled by totaling the percentage points in each category.

Business is attempting to develop an index. First National Bank of Minneapolis in its 1971 annual report outlined how it hoped to measure 10 components that taken together should give an indication of the quality of life in the Twin Cities. Among the categories are job opportunities, environment, housing, health and income.

The National Wildlife Federation, a conservation group, has an index, though it's aimed more at environmental quality. It includes such items as soil, air, water and living space. In 1971 the index declined to 55.5 from 57 in 1970.

Still another approach has been devised by William D. Nordhaus, a Yale University economist. He has modified the gross national product so as to come out with an index of household consumption, which he believes says more about the quality of life than GNP, which is a measure of total output of goods and services.

He calls his index a measure of economic welfare or MEW. It excludes such things as defense spending, police and sanitation services and road maintenance. These items, which are reflected in GNP, are simply overhead costs of running a complex industrial state, Mr. Nordhaus reasons, and they don't really produce any net improvement in the quality of life.

He also includes some things that aren't in the gross national product, such as the value of time devoted to leisure. Finally, he makes allowance for various disamenities such as the costs of pollution, urbanization, congestion and crime. The result is an MEW that rises considerably slower than GNP--54.8% between 1947 and 1965 (the latest year for which Mr. Nordhaus made calculations) as compared with a 99.4% increase in GNP in the same period.

All of these approaches rely heavily on measuring the economic or material aspects of life--consumption, cars, television sets, number of doctors. It can be argued that this is as far as one can or should go in devising a quality of life index, that it becomes impossibly difficult to go beyond material or quantitative measures. To do so would load the index with such a high degree of error as to destroy any usefulness.

Indeed, there are problems enough just with this limited approach. Take the seemingly simple exercise of how to value leisure time. One way is according to the market place. If a person earning $10 an hour has an hour of leisure, it is worth $10. But that leads to the odd conclusion that leisure time for the poor is less valuable than for the wealthy. Observation suggests that just the reverse might be true. Because the poor must work longer to earn a living wage, their leisure actually might be more valuable since they have less of it.

That raises another possibility. Perhaps one should take into account how people themselves value leisure. What is it worth to a person to get an additional hour of leisure? Studies of what commuters are willing to pay for transportation to get home from work faster show that they are willing to pay only 20% to 25% of their salary to save an hour. In other words, a person earning $10 an hour won't spend $10 for an additional hour of free time, but he would pay $2. Is an hour of leisure worth $2 or $10?

Mechanical problems such as this probably can be solved (in the case of leisure, perhaps just by arbitrarily assigning one value or the other), but there are more bothersome shortcomings with consumption as a quality of life indicator. In a society such as ours, which places great emphasis on material goods, no doubt consumption does have a strong correlation to quality of life. Some contend, however, that somewhere along the line consumption becomes an addictive drug with more consumption leading to greater craving, restlessness and unhappiness.

Others, like economist Kenneth E. Boulding, argue that consumption is a poor measure because it is essentially decay--television sets burning out, clothing wearing out. There also is the problem of distribution of goods and services within our society. Consumption is an absolute aggregate measure but quality of life probably is relative--the Joneses keeping us with the Smiths. Thus, a rapid growth in overall consumption coupled with a relative lack of progress on the part of low-income families doesn't necessarily mean an overall improvement in quality of life.

SOME NONECONOMIC FACTORS

Finally, aren't there many noneconomic factors important to the quality of life? Uriel G. Foa, psychologist at Temple University, suggests that every human being has six basic needs: love, status, information, money, goods and services. Some are economic and some aren't. Measuring the ups and downs in the quality of life with an index limited to the economic factors assumes that the noneconomic factors remain unchanged. In fact, the two categories act back and forth on each other in some rather interesting ways.

For instance, a person's religious beliefs can directly affect his personal consumption. They will determine how much of his personal wealth he gives to others and how much he keeps for himself. At the same time, personal consumption will have a great deal to do with his religious beliefs. Whether a man is starving or not is likely to influence how religious he is.

Prof. Foa maintains that by ignoring the significance of noneconomic needs we tend to see improvement in the quality of life exclusively in terms of a better distribution of economic resources. If what the blacks in this country need is status or love, lavishing more goods and services on them isn't the whole answer to improving their quality of life, and this is where indexes limited largely to the economic side of things fall down.

Of course, there are obvious problems when it comes to measuring the noneconomic aspects. If someone gives $10 to another person, he is $10 poorer. If he gives love, he himself likely has more love. With the noneconomic factors two and two don't make four; they make five, six, or sometimes seven.

Perhaps a part solution is to think about quality of life in terms of patterns rather than in absolutes--a suggestion made by anthropologist Margaret Mead. One might look at a pattern of life--what is available with a given level of technology, a given level of education, a given set of resources--and examine whether that pattern supplies people with a degree of dignity as human beings that is comparable to the degree of dignity of other people.

In this way, one can compare a way of life that has, say, more material things and less leisure with one that has less material things and more leisure or with one where people have great opportunities to develop religious or esthetic values and much less material wealth.

Prof. Mead reports that in a New Guinea village where she once lived the people felt they had attained a quality of life comparable to the American style that they had seen in Life magazine because they believed that what was needed was a house that was divided into rooms and that had a separate kitchen. Having that put them on a par with Americans.

Thus, technological levels and levels of consumption become relatively less important. If one has the kind of house that keeps out the rain and gives dignity in regard to one's neighbors, one has the kind of house that is needed and that kind of house, which might be a thatched hut costing $500, can be compared with one in our society that costs $40,000.

THE PLUMBING PATTERN

Patterns are useful, too, in gauging how our own quality of life has changed over the years. For instance, anyone living today in a house without indoor plumbing would be considered deprived, but 50 years ago, not necessarily so.

It doesn't automatically follow that our quality of life has improved just because more American homes have indoor plumbing today than 50 years ago, or because more people have college educations. Beyond the very basic, irreducible human needs, things that contribute to living first class are very much relative to time and place--including the notion of human happiness itself. In some societies people aren't necessarily supposed to be happy.

All of this suggests that quality of life is related, at least partly, to what people believe they ought to have and believe it's possible to have. One study of British factory workers showed that they were just as unhappy if they were paid more than if they were paid less than they thought they ought to be. If this is true, then any index should probably reflect people's expectations.

For the moment, devising a quality of life index that would include economic and noneconomic factors, encompass the essential patterns of life and reflect expectations of people is probably beyond social scientists' capabilities. An index tied largely to consumption is a useful beginning. Hopefully, however, before too much longer, social scientists will provide the tools for a more sophisticated measure.

"QUALITY OF LIFE" NEEDS MORE EMPHASIS

An Excerpt From the Report of the White House Conference on Youth

Report of the White House Conference on Youth, Washington, D. C., April 1971, pp. 71-74.

"QUALITY OF LIFE" NEEDS MORE EMPHASIS

Extract From the Report of the White House Conference on Youth

During the last decade, the economic production of the United States has grown at annual rates approaching $50 billion. Late in 1970 our Gross National Product (GNP) passed the $1 trillion mark. Despite considerations of inflation, we have clearly reached unprecedented levels of basic economic and industrial wealth.

Although there are wide differences of opinion concerning the distribution of wealth, it can be generally stated that our economic growth has been passed on, in varying degrees, to most sectors of our population. Despite this apparent and unprecedented affluence, the social and political trends of the nation indicate a deep and widespread discontentment, particularly among the youth population. Although the nature of this discontent is vague and multivarient, it might generally be described as a basic dissatisfaction with the overall conditions of life. These problems are increasingly referred to as a concern for the "quality of life." This concern considers economic wealth important but also places heavy emphasis on conditions beyond the immediate realm of economics, such as the natural environment, pollution, health, over-crowding, cultural opportunities and political influence. Basically, concern over the "quality of life" suggests a growing disenchantment with the primacy which economics and "materialism" have had in our society and calls for increased individual and social concern for matters not directly within the sphere of economics.

The apparent widespread dissatisfaction and available statistics imply substantial validity to three interrelated theories. First, despite apparent economic progress, the overall "quality of life" within the United States may actually be declining. Second, there is a possibility that the "quality of life" may not be declining but that it is meeting neither its fullest potential, nor the expectations of vast portions of the vast portions of the population. Third, is the possibility that the primacy of economic concerns to our informational, organizational and decision-making processes may be causing imbalance and suboptimization of the "quality of life", within our society. These three prospects suggest a need for vigorous reevaluation of our decision-making criteria and national priorities. Such reevaluation and possible social adjustments will require information and analytical tools which are either not available or inadequate at this time, but it must be understood that GNP is not the sole indicator of the quality of life.

Ultimately, effective decisions and actions cannot be made concerning social objectives unless means can be developed to measure initial conditions and changes in conditions. There are four major problems which must be pursued by efforts to provide information for today's social problems. First, vastly expanded efforts must be made to provide information concerning non-economic and semi-economic matters such as pollution, health, and human skills and potentials. Second, ways must be developed to provide visibility and a just balance of attention to unnoticed yet critical social problems. Third, methods must be developed which provide information about the actual success of public programs in attaining the objectives for which they were created. Fourth, there is a need for a balanced system view of social concerns to facilitate optimal and efficient enough provision of relevant information to generate political pressures through awareness.

The prospect of creating broad economic and noneconomic measurements to provide balanced indicators of the conditions of life within our society is feasible and partially researched. Work to this date suggests that while it is unreasonable to expect a single variable such as the GNP to be an indicator of the "quality of life," it is reasonable to envision the development of a series of consolidated social measures which will provide a general view of the social welfare. However, the sophisticated and interrelated social statistics that are becoming increasingly critical to future decision making have not yet materialized.

MEASUREMENT OF THE "QUALITY OF LIFE"

Criteria should be developed for the measurement of the "quality of life" for both individuals and the general society and mechanisms should be developed for the collection, interpretation and presentation of information pertaining to this criteria.

The criteria should include the following areas of social and individual concern:

(1) Natural Environment. Preservation of natural beauty and wildlife and opportunity to regularly experience unspoiled wilderness and water. Tabulation on the use of reserves of natural resources.

(2) Living Environment. Overall maintenance of urban, suburban and rural living and working areas. Maintenance of minimal conditions for clean air and water, available space, general sanitation and health, housing and structual safety and building and street aesthetics.

(3) General Health. Basic sanitation and safety maintenance, ample available health care and intensive medical services for the young and elderly.

(4) Income and Basic Economic Security. Minimization of individual economic deprivation, minimum guaranteed living standard, equitable distribution of wealth and continual opportunity to pursue improved economic conditions.

(5) Employment and Productivity. General provision for productive opportunity which provides equitable personal rewards, socially beneficial effects and optimization of an individual's ability and willingness to contribute.

(6) Productive Employment Areas. Study of the variations from the mean which exist within minority groups regarding educational attainment in relation to earning power.

(7) Aggregate Economic Advancement. Overall economic production of society which takes into consideration negative and preventive production (such as smog control devices) and environmental deterioration costs.

(8) Training, Education and Culture. Opportunity to learn usable skills, problem solving abilities and the value of the world.

(9) Justice and Freedom Concerning Threat and Coercion. Minimum threat of harm or loss of security. Extent of positive as opposed to negative sanctions used in societal and individual interaction.

(10) Individualism. Opportunity for free expression and selection of "life style," and levels of social tolerance and alienation.

INFORMING THE PUBLIC ON "QUALITY OF LIFE"

Performance indices should be developed and reports should be released in a way which provides a highly visible and simple indication of how our society is functioning in each of the above categories. Social index reports should be publicly released on a regular basis in much the same way as current unemployment and price figures. Information concerning the means of calculating these indices and background data should also be publicly available.

Implementation: There is no clear cost data concerning the development and maintenance of an expanded social report system. The 1971 Federal government allotment for statistical programs is approximately $161 million. It does not seem unlikely that a vastly expanded statistical program would cost twice as much as existing mechanisms.

Although raw data concerning the various categories for an overall "quality of life" report might be collected by agencies and organizations concerned with the subject of measurement, it is undesirable that the nature of the overall report be unduly influenced by a particular interest or perspective. It is therefore suggested that the final accumulation, interpretation and presentation of "quality of life" data be undertaken by an expanded version of the Council of Economic Advisors. The title of the existing Council should be changed to the Council of Economic and Social Advisors. The existing staff and resources of this body should be broadened and plans should be made and implemented which will allow a fully balanced regular report on the overall "quality of life" by the latter half of the 1970's. Ultimately, the Council should assume balanced stature and the title of Council of Aggregate Social Welfare.

HOPES AND FEARS OF THE AMERICAN PEOPLE

Albert H. Cantril and Charles W. Roll, Jr.

Albert H. Cantril is an independent consultant in political and survey research.

Charles W. Roll, Jr. is study director in the Gallup Organization and President of Political Surveys and Analyses, a research organization.

Albert H. Cantril and Charles W. Roll, Jr., Hopes and Fears of the American People, A Potomac Associates Book,New York: Universe Books, 1971, pp. 1-15.

(This has been omitted for reproduction purposes.)

III. QOL: ENVIRONMENTAL PERSPECTIVES

OUR ENVIRONMENT: CONTROLS AND COSTS*

S. Fred Singer

Dr. Singer, currently a member of the faculty of the University of Virginia, was formerly Deputy Assistant Secretary, Scientific Programs, U. S. Department of the Interior.

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*Extracted from the Conference Board Record of May 1971, pp. 20-22.

OUR ENVIRONMENT: CONTROLS AND COSTS

S. Fred Singer

If I am asked to predict what is going to happen to the population or to business, I must have a demographic-economic model. We must describe the real-life situation in a way simple enough so we can deal with it, yet complicated enough to retain all the important features.

We start with population, which can, of course, be characterized by an immense number of attributes. Concentrate on three: age, income, and distribution (i.e., location in a city, town, or rural area). These are likely to be the major parameters determining what goods and services a person needs. For example, a child requires educational services; an adult usually does not. A high-income person spends his money on different goods and services than a poor one, and the needs and spending habits of a rural dweller are very different from a city dweller's.

All goods, whether agricultural or manufactured, require labor and capital. But they also require the use of natural resources: minerals, as raw materials; fuels, mostly in the form of energy; water for processing or cooling; and land for growing, grazing, or for buildings.

We often speak about the consumption of natural resources, but this is incorrect. Resources are not consumed. They are transformed into wastes, which produce adverse effects on air, water, and land. So at every step of a manufacturing or agricultural or mining process, we must spend money to control pollution. In the past, this was passed along to society as a social cost. The polluted environment decreases the quality of life for people in a real economic sense--although the economic loss has seldom been quantified and expressed in dollars. But the damage to health, to crops, to buildings, and to recreation and enjoyment can be measured. Now, because of legislation, these costs must be borne by the polluter--by industry, agriculture, and by municipalities.

Interestingly enough, no good efforts exist in the accounting for all these environmental costs, and certainly they have not been identified in the national income accounts--in the GNP calculations. This is a task we are now undertaking comprehensively, looking at all the pollution control costs incurred in the use of natural resources and in the subsequent manufacturing processes. This study is called "The Environmental Costs of a Growing Population"; it will be published as a source volume on pollution control costs. With this data base we can study and predict a number of things that are very important for the nation's economic life--for businessmen, consumers, government. For example: What is the total national cost of maintaining a certain level of environmental quality; how does this cost increase as population increases and it becomes necessary to clean up all effluents to a much higher degree of purity?

Two points should be made here. First, the national costs include not only costs paid by the consumer for basic natural resources (water, energy), but also the increases in manufacturing costs which come about because the manufacturer has to pay more for minerals, energy and water. Secondly, though individual costs are important, what really count are the national costs: while, in the first instance, an industry bears the cost for pollution control, it must eventually pass this cost along to the consumer. To the extent that industries or municipalities are subsidized by Federal funds, through demonstration grants, construction grants, or special tax write-offs, the cost is spread to the nation as a whole. It is important to realize that the total national costs do not depend on the method of payment, but if we make the method too complicated, then additional money will be sopped up in supporting a bureaucracy.

SETTING STANDARDS

Once we have arrived at a national cost, we can answer some questions: How clean is clean? How far should we, or need we, go in cleaning up the environment? What level of purity makes economic sense (i.e., at what point do additional monies spent for a higher degree of purity become greater than all the additional benefits the purity produces)? This marginal analysis would allow us to use a rational process for setting environmental quality standards, rather than a political and sometimes highly emotional one. I predict that the rational method will win out, particularly as population increases, as demands for natural resources rise more steeply, and as the environment's capacity to absorb wastes is saturated. Consider: Population rises at a little over 1% per year, but consumption of minerals and energy at 3-4%, and electricity at 7%--doubling every 10 years!

Can this trend continue on a finite earth with finite resources? A report of the National Academy of Science's Committee on Resources and Man points out that it may not be possible to meet future mineral demands, especially if we also wish to raise world living standards. Even with present rates of consumption, i.e., no further increase in population, by the year 2000 the known U.S. reserves at current mineable grades of uranium-235, gas and oil will be exhausted, as will manganese, chromium, nickle, tungsten, cobalt, and copper. Worse still, lead, zinc, tin, gold, silver, and platinum will have been mined out all over the world. The dispersal of volatiles like helium and mercury is particularly serious. It must be pointed out that lower-grade ores are available, but extraction costs and especially pollution costs will affect the economics.

The energy situation is not as bleak--provided nuclear catalytic burners, breeder reactors and fusion reactors can be perfected soon enough. Once an inexhaustible source of energy is available, lower-grade ores can be tackled, and more water can be desalted--but at a cost. Even nuclear fusion power does not come free.

We are running out of water. The Federal Water Resources Council in its recent national assessment reports that shortages existing today in the Southwest will spread to many other regions before 1990. Water transfers will no longer be possible; water reuse will be commonplace. But cleaning up water costs money; once free, water will be an expensive material. Keep in mind also that the costs of pollution control rise very steeply as the level of purity approaches 100%. But as more and more people and more and more waste-producing activities share the same body of water, or the same volume of air, each individual will have to control his affluent to a higher degree of purity.

For this reason, pollution control costs (still less than 1% of GNP--and that mostly for collection and disposal of municipal refuse and garbage) will become an ever-increasing fraction of GNP. Eventually, continued growth of the kind we are used to will simply become too expensive. The costs of disamenities like pollution and traffic snarls will become greater than the gains from higher productivity. GNP may continue to rise, but its most important aspect--quality of life--will diminish.

QUALITY-OF-LIFE ECONOMICS

Knowing the national costs of pollution control gives us another useful result; namely, a guide to how much to invest in new technology. For example, within the next few years national costs of meeting air quality standards in electric power plants will be between $1.5 and $2 billion a year. This is a large sum of money, and since nearly everyone pays, it is almost like a tax. So wouldn't it make sense to take a fraction of this money and develop a process which takes sulfur out of coal, and thereby cut the environmental costs?

Business has a tremendous stake in seeing to it that government behaves in an economically rational way. Perhaps economic growth will develop in a way that doesn't cause pollution (and therefore diseconomies). Take health and education services. National health expenditures went from $3.6 billion in 1929 (3.5% of GNP) to $57.1 billion in 1968 (6.6% of GNP). Projections for 1975, between 7.9% and 8.6% of GNP; for 1980, between 8% and 9.8%. Similarly, total national expenditures for education in the U. S. went from a 1943 low of 1.8% of GNP to 7.1% in 1968. Clearly, these expenditures can't increase forever; we may be approaching a saturation point beyond which costs should be predictable by simple demographic principles. In fact, since medical research costs, development costs for drugs and educational aids, computer programs, etc., are relatively fixed, per-capita costs may decrease as population increases.

Predicting the economic future is complicated since each item behaves in a different way. On a per-capita basis, the cost of manufactured goods will increase very steeply, unless offset by technology. Services should hold more or less constant, and certain government expenditures should decrease, as population grows. Our job is to evaluate each of these, since together with capital investment, they contribute to make up GNP. But what are we trying to optimize? Surely not GNP. Even GNP per capita is not the right index, since it corresponds to an index of national production rather than consumption.

We want to achieve the highest quality of life for the population as a whole. We must first define "quality of life" acceptably, and operationally--i.e., the definition will incorporate a method for calculating quality of life and expressing it in some unit, like dollars. Our next job is to devise a way to translate national income accounts (like GNP) into a more meaningful expression of well-being--an index of quality of life (IQL).

In our society, where material comforts contribute importantly to what people perceive as happiness, a loose definition might be "having as much money as possible left over after taking care of basic necessities, and having the necessary time and opportunities for spending it in a pleasant way." This also means "having a maximum range of choices for a way of life." This definition satisfies our criteria reasonably well. It measures the quality of life in dollar terms by calculating potential consumption and assigning a monetary value to free time. Specifically, we start by examining the national income accounts, which aggregate the nation's output, to see which items contribute to IQL, and to what extent. We include amenities like leisure time and environmental quality--not counted in GNP. We subtract items that enter into GNP but are really disamenities which don't contribute to quality of life. Among the most important are pollution and increase distribution costs in crowded urban areas.

We can now look at "optimum population" by closing the loop in our systems analysis which models the relationships among population, resources, environment, and quality of life. For example, we can test the effects of individual demographic changes, i.e., age, income, geographic distribution. To do this, we "exercise" our model to derive first the various items of GNP, including disamenities, and then calculate the corresponding IQL. As the population grows and changes according to our demographic model, the quality of life will change--and, hopefully, improve--until a point is reached where the disamenities become so large that quality of life diminishes from then on. At this point we can reasonably say we have reached an optimum level of population.

A GUIDE FOR GOVERNMENT POLICY

If the model is proven out acceptably, it can perform many other tasks. It can, for example, gauge the effects of various government policies, not only on demographic parameters (i.e., population), but also on the quality of life for the average citizen. What will be the various economic effects of family planning or fertility control on consumption of goods, services, business in general? What about the effects of income maintenance or a national growth policy which tries to achieve a better distribution of population? Tax policies can stimulate or inhibit; and various economic policies regarding farmers, labor unions, corporations, transportation, housing, natural resources--all have secondary impacts often difficult to predict. New technology has positive features and can increase productivity and quality of life--but it can also have drawbacks which in the long run produce diseconomies. A measure of such factors is long overdue.

POLICY MEASURES FOR THE ENVIRONMENT*

Harvey S. Perloff

Harvey S. Perloff is Dean of the School of Architecture and Urban Planning at the University of California in Los Angeles and Associate with Resources for the Future.

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POLICY MEASURES FOR THE ENVIRONMENT

Harvey S. Perloff

A broad framework for what I would call a system of "policy measures for the environment" is suggested here (see table 1). First, let me make some comments about the terms used. "Indicator" is normally used to describe the condition of a single element, factor, or the like, which is part of a complex interrelated system (employment, cost of living, production, etc., in the case of economic indicators). It is evident that in the case of the urban environment equally revealing indicators can be provided to describe existing conditions--say, with regard to air pollution, quality of housing, amount of open space available, etc.

"Accounts," on the other hand, refer to comprehensive systems of data characterized by a balance between inputs and outputs or inflows and outflows (such as national income accounts, input-output accounts, or flow-of-funds accounts) or providing the value of the total stock of various items in a total system, as in the case of wealth accounts. We have a long way to go before we are able to work out comprehensive social accounts for the environment. However, as noted at a number of points, it is important to provide a broad picture of the urban environment because it is essential to be able to highlight interrelationships and externalities. What seems possible at the present time is the provision of rather comprehensive "policy measures" or "decision measures" that, while not fully comprehensive or characterized by balanced two-way flows, could nevertheless serve a unifying purpose in reporting on the environment specifically as an aid to governmental policy decisions. These must include both stock and flow items and, because of the focus on public policy, emphasize outlays and investment and the returns on these.

Table 1 outlines the main elements of the data framework proposed.

The first task involved would be to work out meaningful "indicators of present condition" (column 1) for each of the items listed. These would reflect present goals and standards (both legislative and informal) with the data attempting to indicate where we stand with regard to these goals and standards. The establishment of standards is no mean task. It would require a good bit of research as well as a sensitive reading of the standards that have

Table 1 FRAMEWORK FOR EVALUATING POLICY MEASURES FOR THE ENVIRONMENT

Elements in the environment	Indicators of present condition	Costs of environmental maintenance at present levels		Costs (or other adverse consequences) of environmental abuses and shortfalls		Costs of achieving standards at various levels		Benefits of achieving standards at various levels	
		Private	Public	Private	Public	Private	Public	Private	Public
	(1)	(2)		(3)		(4)		(5)	
A. The Natural Environment									
1. The airshed									
2. The watershed									
3. The open space-recreation "shed"									
4. Quiet-and-noise zones									
5. Olfactory zones									
6. Micro-climate zones									
7. Sunlight exposure									
B. The Spatial Environment									
1. Underground space									
2. Uncovered land									
3. Covered land									
4. Radiospectrum space									
5. Airways space									
C. Transportation-Utilities Environment									
1. Transportation: a) commuting time; b) alternative modes, including mass transit; c) congestion; d) safety; e) stress; f) aesthetics (e.g., billboards, landscaping)									
2. Water supply facilities									
3. Sewerage facilities									
4. Solid waste disposal									
5. Electricity facilities									
6. Gas facilities									
7. Telephone facilities									
8. Other communication facilities									

Table 1 FRAMEWORK FOR EVALUATING POLICY MEASURES FOR THE ENVIRONMENT (continued)

Elements in the environment	Indicators of present condition	Costs of environmental maintenance at present levels		Costs (or other adverse consequences) of environmental abuses and shortfalls		Costs of achieving standards at various levels		Benefits of achieving standards at various levels	
		Private	Public	Private	Public	Private	Public	Private	Public
	(1)	(2)		(3)		(4)		(5)	
D. Community-Neighborhood Environment									
1. Community characteristics: a) mix (e.g., degree of segregation); b) types and condition of structures and land uses; c) community stresses; d) design environment (densities, street lighting, billboards, interest points, landscaping, zoning, etc.)									
2. Services environment (measures of quality and nearness): a) educational-cultural environment; b) personal safety and protection; c) health facilities and services; d) commercial facilities and services; e) recreation facilities and services; f) "caretaker" functions									
E. Household Shelter									
1. Housing condition									
2. Crowding									
3. Rats, roaches, and other pests									
4. Plumbing									
5. Household equipment									
F. Workplaces									
1. Safety									
2. Amenities (e.g., eating facilities, sanitation)									
3. Work challenge indicators (assembly line, freedom of movement, etc.)									

the broadest and most strongly held acceptance. This clearly is an evolving task. In the first instance, the best standards at hand would be employed. At the same time, it would be useful to highlight the weaknesses of existing standards, particularly where too narrow an interpretation of objectives to be achieved could be misleading, and to explore the special characteristic of measures within the different categories.

As Joseph Fisher has pointed out (in his chapter in the "Preliminary Report on Environment" for the Panel on Social Indicators of the U. S. Department of Health, Education, and Welfare), the quality characteristics of the environment tend, to a considerable extent, to be subjective, with considerable variation in the views of different individuals. Further, air pollution and recreation opportunities, for example, affect different individuals quite differently, both physiologically and psychologically.

Another point deserves attention: The various aspects of the natural environment are interrelated in numerous and sometimes confusing ways. One way of abating industrial air pollution is by filtering and washing smoke to prevent contaminants from going into the atmosphere, and instead sluicing them out into the water courses, thereby adding to water pollution. The interrelations extend beyond the realm of natural resources. For example, one way of reducing pollution from automobiles would be to discourage or prohibit certain uses, but this would greatly affect transportation and might also drastically alter the microenvironment in which people live and work. Just as the various kinds of environmental pollution tend to be interconnected, so also the measures for abating and controlling them tend to be interconnected. And one should be cautious about interpreting a favorable movement over time in an indicator of air pollution lest it is accompanied by an equal or greater movement in the opposite direction in an indicator of water pollution.

Concern for arriving at some overall indicator of environmental quality in which the various interrelations and trade offs can be included leads one toward the concept of net social benefit--that is, total (or incremental) social benefit less social cost. This concept of net social benefit can be applied to a particular kind of environmental disturbance or it can be thought of in connection with a large range of environmental effects.

The social indicators alone can provide only a limited part of the story. If we are looking ultimately to policy, it would be essential to get a picture also of the costs of our shortfalls, as well as the costs and anticipated benefits of actually fulfilling existing goals and standards, or higher-level goals and standards. But this calls for more than indicators; here we would have to put policy measures to work. The key categories that might be employed are suggested in table 1.

Thus, the reporting system proposed would set out, as a second item, "costs of environmental maintenance at present levels" (column 2), broken down by private and public costs wherever possible. In almost every instance, substantial sums are already being spent in order to maintain existing environmental conditions--no matter how unsatisfactory. This is true of the present expenditures involved in keeping down air and water pollution; it is also true of the costs involved in trying to create a relatively safe street environment and transportation environment. The setting down of current cost figures would provide a rough measure of the relative amount of effort directed at any one of the items of interest in the environment. It would raise issues about the priorities attached to the various subjects and it would also raise questions such as whether we are getting our money's worth. There is a tendency in most discussions of the environment to think only in terms of the additional expenditures necessary to achieve somewhat higher levels. This can be misleading, certainly as regards the relative emphasis to be given to different activities. As in the other major items to be covered, breakdowns in terms of the various sections of a metropolitan region (slums, suburbs, etc.), would provide a useful picture of the relative attention being given to the various parts of the region.

Column 3 in the proposed reporting system calls for estimates of the costs--or other adverse consequences--of environmental abuses and shortfalls. In this, an attempt would be made, not only to obtain rough estimates of such items as the costs resulting from air pollution, but also of inadequate public services. Such costs would be recorded in dollar terms wherever possible, even if some heroic assumptions have to be made. In cases where dollar costs are simply not to be had, sharply focused descriptions or indicators of a non-cost nature would be useful.[1]

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[1] A sense of how much information can be conveyed by focused description is provided by the statements in the Supreme Court 1954 school decision on the losses attendant on a "separate-but-equal" education system.

Here, again, the specification of the standards to be achieved would be essential, particularly in measuring shortfalls. It is necessary to establish a wide variety of fairly narrow and specific standards--e.g., for housing quality--as well as broader, more aggregative goals, such as a satisfactory home and community environment. Not only must standards be quite specific in the case of the environment, but they are also inevitably rather variable, that is, they often have to cover a wide range. Thus, it is possible to set up standards for various degrees of "purity" in the case of air and water and to measure the cost of achieving such standards as well as the cost of falling short of their achievement. The same is true in the case of housing standards, standards of congestion, and many other features that might be included under the environmental rubric. To round out the picture, then, it would be necessary to provide estimates of costs of achieving standards at various levels (column 4).

Thus, the whole system is built on a recognition of the fact that the quality of the environment is judged by the values of the society, that different levels of achievement are possible, that each of these has cost features attached--both in achieving the given levels and in falling short of achieving them--and that benefits are also to be derived from improvements in the environment. Unfortunately, these benefits are very much harder to define. In some cases they can be fairly firm, particularly when the benefit amounts to an avoidance of the cost of abuse or shortfall. But in other cases they are much more general. Over time, however, it might be increasingly possible to provide benefit estimates. Even short of such figures, it would be possible to describe in general terms the benefits of achieving specified standards and, thereby, to provide a better basis for public judgment.

At a later stage it might be possible to introduce additional types of indicators or other measures to round out the picture and provide a better basis for evaluating the present and alternative futures. One of these would be a "time budget" or measure of time expenditures, which would provide a picture of the time spent in major activities by various categories of individuals, and thus, in a general way, suggest the relative importance of different kinds of environments and the uses made of them.[2] Such a measure, together with direct measures of intensity of use of services and facilities as well as of homes, work places, and transportation, would provide the basis for measurement of relative "exposure" and the development of risk ratios. This, for example, would tend to show the tremendous importance of the street in poor neighborhoods, the extent to which some public facilities are overutilized and others underutilized, and the relative exposure of people to various areas of the city (thus emphasizing, for example, the relatively great importance of small intown open spaces--such as squares and school playgrounds--as compared to vast open spaces far beyond the reach of most people). An intensity index could be a very powerful tool for decision making in some of the environmental items.

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[2] See the Chapin-Logan paper on pp. 303-32.

Differentiation in the "policy measures" not only needs to be made with regard to various classes of communities within a metropolis but also with regard to various age groups, income groups, and racial and ethnic groups. Wherever pertinent, the indices or measures should be in terms of age, income, and race and ethnic categories as in the educational-cultural environment, in health, and in recreation.

The indicators of present conditions should, wherever possible, provide information on three kinds of items: (1) the average situation in the various communities for the key items, as well as group distribution around the average; (2) improvement or deterioration over time, and (3) extreme situations that deserve special attention. In general, treatment of extreme situations is necessary so that significant special problems are not overlooked: without such items any reporting scheme would tend to be much too bland. If the scheme is to serve policy and action purposes realistically, a description of community stresses when the situation is explosive or of pollution conditions when health is directly threatened should not be lost in a mere deluge of data on averages.

FINAL NOTE

The information framework proposed here is essentially a decision-making "model," highlighting the present state of affairs, what is deemed good and bad about it, the costs we suffer as a result of the shortcomings, and what is needed to bring the situation up to higher standards. The implementation of such a model would clearly require substantial effort but, when operational, it would provide an extremely valuable decision-making tool. It has the clear advantage of being close to policy and operations both in terms of its inputs and outputs; that is, on the one side, administrative or operating data could be used as the main sources of information while, on the other, it would provide a basis for policy decisions in a direct and meaningful framework. It is taken as an article of faith that governmental policy and action will be improved as knowledge about the urban environment increases and alternative possibilities can be reviewed in a broad and meaningful decision framework.

THE CONCEPT OF AMENITY RESOURCES*

Arthur A. Atkinson and Ira M. Robinson

Arthur A. Atkinson is Executive Director of the Institute of Urban Ecology and a lecturer in Public Administration and Urban Planning, University of Southern California.

Ira M. Robinson is Professor of City and Regional Planning and Chairman of the Graduate Department of Urban and Regional Planning, University of Southern California.

*Extracted from "Amenity Resources for Urban Living." In The Quality of the Urban Environment, edited by Harvey S. Perloff, Washington, D. C., Resources for the Future, Inc., to 1969.

THE CONCEPT OF AMENITY RESOURCES

Arthur A. Atkinson and Ira M. Robinson

As more and more people cluster into urban regions, what happens to the natural environment increasingly becomes a matter for public policy interest. Much of this interest is centered on the idea of "amenity resources"; although the concept of these highly valued resources remains vague. With growth in population, income, and leisure, pressures on such amenity resources can increase precipitously. Under such circumstances, the "management" of amenities becomes quite complex and can be extremely costly. Clarification of the concept of amenities and a better understanding of what might be called the amenity management process can contribute to public policy in this area.

It is helpful in this respect to conceive of the urban environment as a system with certain inputs and outputs and a set of conversion processes. Thus, if the outputs somehow fall short of our expectations, it becomes evident that we must look both at the quantity and quality of the inputs and at the processes by which they are being transformed, utilized, and related to the end states desired of the system. It also becomes clear that we must define the outputs we desire and the functions they are to perform.

It has been argued that such a coldly calculating approach to the design of systems which so deeply touch the quality of man's life does violence to man's very spirit and to the values of human freedom which underpin our society. To this, former Secretary of Defense McNamara has replied: "To undermanage reality is not to keep it free. It is simply to let some force other than reason shape reality. That force may be unbridled emotion; it may be greed; it may be agressiveness; it may be hatred; it may be ignorance; it may be inertia; it may be anything other than reason."[1]

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[1] Quoted in "A Changing City: Government," Progressive Architecture (August 1967), p. 123.

In this paper we suggest that responses to amenities make up one of the outputs derived from man's environmental system; that these outputs can be "managed"; and that decisional criteria and management systems can be developed to accomplish this task in a rational and socially responsible manner.

THE OBJECTS OF AMENITIES PLANNING AND MANAGEMENT

Although many distinguished writers on urban matters have discussed amenities, few have attempted to specify the boundaries of the subject, define the terms they use, or develop a conceptual framework appropriate for consideration of the topic. The different approaches to the subject are, however, suggestive.

In a paper prepared for the President's Commission on National Goals, Catherine Bauer Wurster referred to amenities as including "the New England village," "the Gold Rush town," and "other pleasant communities with historic or merely rustic flavor," as well as natural amenities, such as open space for recreational use, clean air, and water.[2]

More recently, Jean Gottmann has argued that urban amenities include "physical and cultural" components related to the "good life" and has called for "a rapidly changing urban morphology, bringing more amenities, and an actually good life, into the cities." He refers to "physical amenities," as including attractive, climatologically pleasant surroundings and links the term with Riviera-type environments, good landscaping, and urban beauty.[3]

John Burchard has also linked urban beauty with amenities, and has described twelve amenity or urban beauty elements, including the weather and sky, lakes, river banks, parks, and squares.[4]

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[2] Catherine Bauer Wurster, "Framework for an Urban Society," in Goals for Americans, The Report of the President's Commission on National Goals (Prentice-Hall, Inc., 1960), pp. 225-47.

[3] Jean Gottmann, "The Rising Demand for Urban Amenities," in Sam Bass Warner, Jr. (ed.) Planning for a Nation of Cities (M. I. T. Press, 1966), 11. 163-78.

[4] John Burchard, "Some Antidotes for Ugliness," A. I. A. Journal (April 1965).

He has also ranked various cities of the world in terms of an "urban amenity score sheet," based on twenty-four qualitative characteristics, among which are: fine rivers, lakes, great parks, trees and shrubbery, good air, generally pleasant climate, distinguished buildings, distinguished museums, fine libraries, diverse neighborhoods, visible past, and art in the streets.[5]

In discussing "the administration of the amenities," Jon Alexander has suggested that "those things beyond life's necessities which make human life meaningful, we call amenities. Their function is the development of that in us which is uniquely human... Amenities programs may be distinguished by whether they primarily involve management of the environment, or primarily involve organization of activities of people."[6]

Linking the notion of amenities with economic development and population growth, Perloff and Wingo[7] have suggested that certain features of the natural environment affect the pattern of economic activity and distribution of population of a region. They suggest that amenity resources include that special juxtaposition of climate, land, coastline, and water offering conditions of living which exert a strong pull on migrants from less happily situated parts of the nation. They view the concept in terms of a special constellation of environmental conditions that "affords conditions of life highly sought after in an affluent and mobile society."

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[5] John Burchard, "The Culture of Urban America" (Paper given at 50th Anniversary Meeting of American Institute of Planners, February 1-6, 1968).

[6] Jon Alexander, "The Administration of the Amenities," Public Administration Review, Vol. 28 (January/February 1968), p. 55.

[7] Harvey S. Perloff and Lowdon Wingo, Jr., "National Resource Endowment and Regional Economic Growth," in John Friedmann and William Alonso (eds.), Regional Development and Planning, A Reader (M.I.T. Press, 1964); Harvey S. Perloff and Lowdon Wingo, Jr., "Planning and Development in Metropolitan Affairs," Journal of the American Institute of Planners, Vol. 28, No. 2 (May 1962); Harvey S. Perloff, "'New' Resources in an Urban Age," in Harold F. Wise (ed.), America's Private Construction Industry and the Future American City (Proceedings of a Symposium sponsored by American Cement Corporation and Urban America, Inc., January 1966).

In Great Britain the term amenity has been in common use among planners for a great many years. A standard British textbook on urban planning lists one of the objectives of planners as the "preservation, protection, and evolution of amenity," and defines this function to include "preservation of buildings of special architectural and historical interest; control of advertisements; concern with architectural appearance; preservation of trees and woodlands; protection of living or working conditions."[8] Sir William Holford, a highly respected British architect-planner, has stated that "amenity is not a single quality, it is a whole catalogue of values. It includes the beauty that an artist sees and an architect designs for; it is the pleasant and familiar scene that history has evolved; in certain circumstances it is even utility--the right thing in the right place--shelter, warmth, light, clean air, domestic service ...and comfort stations."[9]

Reflecting agreement with this broad definition of the term, Gunnar Myrdal has called for "uniform standards in regard to all community amenities" which he then defines as including everything from "the provision of streets, parks, and playgrounds and their upkeep to the building of schools and the improvements of the level of teaching."[10]

Thus, an amenity can be defined in many ways. Some have linked it with qualities of desirability which lead to enhanced economic value of properties or which exert a lure to potential immigrants; some define it as any phenomenon which results in a pleasurable experience to those who are exposed to it; while others suggest that it is any comfort or convenience beyond the level of life's necessity. Some include man-made facilities in their definition while others confine the use of the term to certain natural features of the environment.

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[8] Nathaniel Lichfield, Economics of Planned Development (London: The Estates Gazette, Ltd., 1956), p. 32.

[9] Cited in Daniel R. Mandelker, Green Belts and Urban Growth (University of Wisconsin Press, 1962), p. 32.

[10] Gunnar Myrdal, "National Planning for Healthy Cities: Two Challenges to Affluence," in Warner (ed.), Planning for a Nation of Cities, pp. 3-22.

The definitional breadth which surrounds the use of the term is also revealed by Webster, where the range of definitions includes: " ... the quality of being pleasant or agreeable ... the attractiveness and aesthetic or nonmonetary value of real estate ... something that conduces to physical or material comfort or convenience or to a pleasant or agreeable life ... an area or location that provides comforts, conveniences, or attractive surroundings to residents or visitors."

It therefore seems clear that any useful discussion of urban amenity resources must focus initially on the relevant meaning of the term and the phenomena which one wants to include.

A DESCRIPTION OF AN ENVIRONMENTAL EVALUATION SYSTEM*

Ira L. Whitman
Norbert Dee
John T. McGinnis
David C. Fahringer
Janet K. Baker

Mr. Whitman is the Director of Urban and Regional Development Programs at Battelle Columbus Laboratories.

Messrs. Dee, McGinnis, Fahringer, and Ms. Baker are also with Battelle Columbus Laboratories.

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*This article represents an extraction from a larger report, the "Design of an Environmental Evaluation System" prepared for the U. S. Department of Interior by Ira L. Whitman and staff, Battelle Columbus Laboratories, June 1971, pp. 7-10.

A DESCRIPTION OF AN ENVIRONMENTAL EVALUATION SYSTEM

Ira L. Whitman
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INTRODUCTION

The environment represents the most complex system known to man for it truly represents the complete set of resources, physical and biological, that exist on earth, as well as the infinite interactions that occur among this set of resources.

An environmental evaluation system (EES), to be practical and effective, must greatly simplify the environment into a relatively small number of measurements and indicators that can be used to determine whether or not a proposed water development project has a significant impact upon the environment. An EES, to be of value, must be comprehensive and broad enough to include all relevant types of environmental measurements and indicators as determined through an interdisciplinary perspective. An EES, to be utilized in the water resources planning process, must be structured in an orderly and systematic framework that will enable replication from project to project and yet be flexible enough to be useful over a wide range of water resources development alternatives. In short, an EES must be an analytical tool that strikes a balance between too little detail and too much detail--a tool that can be valuable in the water resources planning process if used intelligently and honestly.

This chapter describes the structure, content, and values of the EES that the Battelle-Columbus research team has developed for the Bureau of Reclamation. In the judgment of the research team, the system presented on the following pages best meets the condition ascribed by the Bureau at the outset of this project and will meet the needs of the Bureau in being responsive to the National Environmental Policy Act of 1969.

STRUCTURE OF ENVIRONMENTAL EVALUATION SYSTEM

To simplify the structure of the EES, terms at four levels of generality are used as follows:

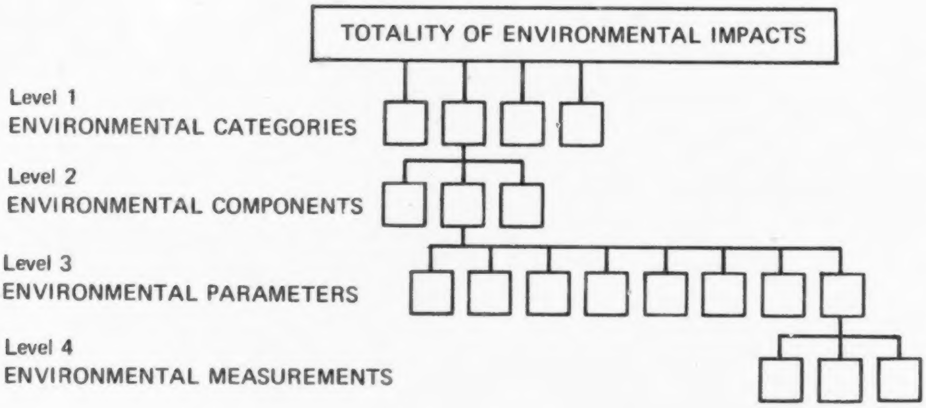
Level 1--Most general terms -- ENVIRONMENTAL CATEGORIES

Level 2--Intermediate terms -- ENVIRONMENTAL COMPONENTS

Level 3--Specific terms -- ENVIRONMENTAL PARAMETERS

Level 4--Most specific terms -- ENVIRONMENTAL MEASUREMENTS

These terms are arranged in a hierarchical order within the EES as follows:


TOTALITY OF ENVIRONMENTAL IMPACTS
Level 1
ENVIRONMENTAL CATEGORIES
Level 2
ENVIRONMENTAL COMPONENTS
Level 3
ENVIRONMENTAL PARAMETERS
Level 4
ENVIRONMENTAL MEASUREMENTS

However, as an overview to understanding the entire system, it should be recognized that the ENVIRONMENTAL PARAMETERS are the key level within the system. The system has been designed so that each parameter represents--on its own--a unit of environmental significance worthy of separate consideration. Thus, a major change in any single parameter represents a "red flag" of environmental significance that requires detailed attention during the planning of a water resources project.

The EES is designed with 4 environmental categories, 17 environmental components, and 66 environmental parameters. Each parameter is then defined according to one or more specific measurement, as appropriate.

CONTENT OF ENVIRONMENTAL EVALUATION SYSTEM

Each of the environmental categories, components, and parameters will be discussed separately later in this section. To put the entire system in perspective prior to this discussion, all of the elements within the system are presented below.

Environmental Categories

- I. ECOLOGY
- II. ENVIRONMENTAL POLLUTION
- III. ESTHETICS
- IV. HUMAN INTEREST

Environmental Components

- I. ECOLOGY
  - (A) Species & Populations
  - (B) Habitats & Communities
  - (C) Ecosystems
- II. ENVIRONMENTAL POLLUTION
  - (D) Water Pollution
  - (E) Air Pollution
  - (F) Land Pollution
  - (G) Noise Pollution

III. ESTHETICS

- (H) Land
- (I) Air
- (J) Water
- (K) Biota
- (L) Manmade Objects

IV. HUMAN INTEREST

- (N) Education-Scientific Significance
- (O) Historical Significance
- (P) Cultural Significance
- (Q) Mood-Atmosphere Significance

Environmental Parameters

I. ECOLOGY

(A) Species & Populations

- (1) Rare and endangered plant and animal species
- (2) Productive plant species
- (3) Game animals
- (4) Other animals
- (5) Resident & migratory birds
- (6) Sport Fisheries
- (7) Commercial fisheries
- (8) Pestilent plant and animal species
- (9) Parasites

(B) Habitats and Communities

- (10) Species diversity
- (11) Food chains
- (12) Land use for habitats and communities

(C) Ecosystems

- (13) Productivity rate
- (14) Hydrologic budget
- (15) Nutrient budget

II. ENVIRONMENTAL POLLUTION

(D) Water Pollution

- (16) Algal blooms
- (17) Dissolved oxygen
- (18) Evaporation
- (19) Fecal coliforms
- (20) Nutrients
- (21) Pesticides, herbicides, defoliants
- (22) pH
- (23) Physical river characteristics
- (24) Sediment load
- (25) Stream flow
- (26) Temperature
- (27) Total dissolved solids
- (28) Toxic substances
- (29) Turbidity

(E) Air Pollution

- (30) Carbon monoxide
- (31) Hydrocarbons
- (32) Particulate matter
- (33) Photochemical oxidants
- (34) Sulfur oxides

(F) Land Pollution

- (35) Land use and misuse
- (36) Soil erosion
- (37) Soil pollution

(G) Noise Pollution

- (38) Noise

III. ESTHETICS

(H) Land
- (39) Land forms
- (40) Geologic surface material

(I) Air
- (41) Pleasantness of sounds

(J) Water
- (42) Surface characteristics
- (43) Water-land interface characteristics

(K) Biota
- (44) Vegetation
- (45) Fauna

(L) Man-Made Objects
- (46) Visual
- (47) Condition
- (48) Consonance with environment

(M) Composition
- (49) Interaction of land, air, water, and man-made objects
- (50) Color

IV. HUMAN INTEREST

(N) Educational-Scientific Significance
- (51) Geological significance
- (52) Ecological significance
- (53) Archeological significance
- (54) Unusual water phenomenon

(O) Historical Significance
- (55) Related to persons
- (56) Related to events
- (57) Related to religions and cultures
- (58) Related to architecture and styles
- (59) Related to the "western frontier"

(P) Cultural Significance
- (60) Related to Indians
- (61) Related to religious groups
- (62) Related to ethnic groups

(Q) Mood-Atmosphere Significance
- (63) Isolation-solitude
- (64) Awe-inspiration
- (65) "Oneness" with nature
- (66) Mystery

The content of the EES is designed to be as consistent between each category and each component as is possible. However, it will be immediately recognized that there are significant differences in the types of parameters that one is able to designate in one category compared to those in another. There are three primary reasons for this diversity.

(1) The tremendous diversity between category types.
(2) The ability to quantify relationships and values in each category is different.
(3) More is known on how to express quality in some categories than others--difference between objective and subjective evaluation.

IV. QOL: ECONOMIC AND SOCIAL PERSPECTIVES

TOWARD BALANCED GROWTH:
QUANTITY WITH QUALITY

A Summary of the Report to the President by the National Goals Research Staff.

Report to the President by the National Goals Research Staff, Washington, D. C., 1970.

TOWARD BALANCED GROWTH:
QUANTITY WITH QUALITY

Summary of the Report to the President by the
National Goals Research Staff, July 18, 1970

President Nixon established the National Goals Research Staff July 13, 1969. The role assigned to the Staff was to analyze social trends, make projections about the kind of society that could result if present trends continue, forecast future developments and pose alternatives for the future domestic life of the Nation. The Staff did not undertake to set goals or to be a planning office. Rather, it studied and compared a variety of national domestic strategies that are available to the Nation and that can help in making the kind of informed choices essential to guide the processes of change.

The past year's work of the NGRS represented an experiment in supporting the formulation of national policies. One objective of the experiment was to aid in the improvement of the national decision-making processes of public and private institutions by anticipating events rather than by simply reacting to "crisis" situations. A second objective was to provide longer-range concepts of future conditions of our society in the recognition that the choices made today will importantly affect the kind of society we will have in 10, 20, or--in some cases--even 50 years. A third objective was to provide the American people with information which would facilitate their participation in setting the Nation's goals and related policies.

In connection with this third objective, the President directed the Staff to prepare a public report by July 4th of this year. He stated that the report should "serve as a focus for the kind of lively widespread public discussion that deserves to go into decisions affecting our common future."

The report of the National Goals Research Staff takes its central theme from the President's call, in his State of the Union message, for the development of a policy on national growth. The report examines a number of areas of American life where the issues of the nature and direction of growth are being argued. But, increasingly, we have become aware that growth is not enough. We have become alarmed at the threats to our environment posed by industrial and technological progress. We have developed a new and acute awareness that the quality of life cannot be measured in quantitative terms.

Concern has bred alarm, and some have urgently demanded that we call a halt to growth altogether. Yet, as the report points out, our need is not to stop growth but to redirect it. We can have quantity with quality. In fact, given our rising levels of expectation, we cannot have quality without quantity. But it is equally true that quantity without quality is no longer adequate either as a goal or as a standard of measurement. Plainly, we need to develop a concept of "balanced growth" and the guidance mechanisms through which it can be achieved on a sustainable basis. Many of the policy debates of this coming decade will be over how we strike the balances.

Making intelligent policy choices becomes increasingly complex as society itself becomes more complex, and as the consequences of various courses of action become more far-reaching and more intricately intertwined.

Though the choices are more complex, our means of making those choices have also been greatly advanced.

The vast increase in scientific knowledge, in technological capability, in our understanding of the economic and social forces that shape our society, all greatly increase both our capacity and responsibility to make intelligent choices about our future.

Of all the advances in our understanding of the ways in which human institutions work, none is more significant than those we now are making in our understanding of the means by which results that we want can be achieved and those we do not want can be avoided.

The report emphasizes that as we choose our goals for 1976 and beyond, it is vital that the process of decision be as broadly based as possible--not only involving the intelligence and the energy of people everywhere, but also inspiring an active sense of participation--"a role for everyone."

This report is meant to inspire debate--and to help give that debate form, direction, and meaning.

If people are to make their wishes felt effectively, it is important that they be aware of what the real issues are--that is, what the real questions turn on, where the "pressure points" are, and what the considerations are that must be weighed in any responsible determination of a particular policy. By presenting some of the emerging major debates in this form, it is the objective of the Report that informed, effective, and constructive discussion of the issues involved will be encouraged on the broadest possible basis.

A summary of each of the chapters of the Report follows.

CHAPTER 1--EMERGING DEBATES

America appears to be at a point of profound change, frequently characterized as that from an industrial society to a "post industrial society"--from a society in which production of goods was of primary concern to one dominated more by services and the generation and use of new knowledge. Consequently, we are in a period of marketed social change, one aspect of which is the search for a growth policy to guide that change. This report examines several areas in which the choice of a future growth policy is explicitly or implicitly being debated. Its intent is to use these case examples as a part of a learning experience, as one discrete step in the evolution of a policy of balanced growth, as called for by the President. The approach is analytical and not prescriptive. The purpose is to aid the American people and their representatives in what is assumed to be a long process for evolving a growth policy.

The key substantive areas in which the problem of growth is being debated are: population growth and distribution, environment, education, basic natural science, technology assessment, and consumerism. In general, these topical areas do not correspond to the major social problems with which we are presently concerned, including those of our cities, campus unrest, the Vietnam War, and race relations. These represent dissatisfactions over our performance according to our established priorities.

Probably the major message that comes from the existing debates over a growth policy is not that our institutions have proven incapable of doing their job. Rather, many of our institutions have performed very well the tasks which we set for them a few decades ago. However, is so doing, they have created unanticipated problems with which we must now deal, and they must be reoriented toward the tasks that are appropriate in a society capable of a new level of performance. The range of criteria whereby we will judge institutional performance will be broader in scope and longer in time perspective. An essential part of this period of transition is the attempt to shift from a reactive form of public decision making, in which we respond to problems when they are forced upon us, to an anticipatory form in which we try either to avoid them or be prepared to deal with them as they emerge.

It is the hallmark of our country that Americans have adjusted to change while preserving the basic qualities of their institutions. This has happened a considerable number of times in our history. In the course of this history, a predominant theme has been one of economic growth, and an accommodation to a larger population. At no time was economic growth considered so dominate a goal that it obscured all other concerns, but neither was the growth per se viewed as other than a good thing.

Today, for the first time, we find the virtues of economic growth questioned, and this issue is put in popular terminology as one of "quantity versus quality." This is, in the view of this report, a false phrasing of the issue, since the new qualitative goals being proposed and the old goals yet unmet can be achieved only if we have continued economic growth. The issue is better put as one of how we can ensure continued economic growth while directing our resources more deliberately to filling our new values.

A large portion of the explanation for this seems to lie in our demonstrated ability to achieve economic stability and growth in the period following the passage of the Employment Act of 1946. Even though our economy is at the moment in a period of transition, the pervading public and official view is that we are a Nation of growing, unprecedented economic resources.

At the same time that we have become a Nation that can afford to care we have also become a Nation that cannot afford not to care. The past decade has been marked by an emerging sense of conscience for the plight of the underprivileged, an awareness of social and economic problems that are the unanticipated consequence of our past actions, a resolution that we can guide our affairs more rationally, and simultaneously, a broad popular demand for citizen participation in the management of their own fate. While this was happening, we also developed new techniques of decision making whose promise spurred the resolution to run things more rationally, but whose full potential is incompletely understood or tested.

While this resolution to run our affairs both more rationally and more effectively was emerging, two complicating circumstances arose. The Vietnam War placed a strain on our admitted large resources and belatedly forced us to recognize the necessity of considering priorities more seriously. And, a more complex model of how to go about purposive action evolved in part from the ecologists' experience with the environment, and in part from our increasing knowledge of social science and our mixed experience in attempting social and political reform.

We thus find ourselves at a point at which the following things are true: We have rising expectations and changing values concerning the goals we should set for ourselves both in resolving existing inequities and in improving the quality of our lives. However, while our resources are large and growing, they are finite and we must set priorities more deliberately. In compensation for this complication we have the promise of more rational methods of public decision making as a way of selecting and implementing our priority goals. But, this must be brought about in a context in which there is greater public participation, and greater recognition of the complexities of the world--both social and environmental--in which we live.

CHAPTER 2--POPULATION GROWTH AND DISTRIBUTION

In a nation that once valued its population size and growth, and in which the phrase "fastest growing" was attached to the name of proud municipalities, the question of overall population size and distribution has come under active debate.

The question of population size in the United States is not Malthusian. The issue is not whether we can feed and clothe a population of any size we can realistically envisage, or even supply it with the expanding amount of energy it may demand. It is rather that of whether a technologically advanced and industrially prosperous nation wants, or can continue to pay the price of congestion and contamination that comes from our overall affluence. It is suggested that our size may be limited by the ability of the environment to absorb the wastes that result from our economic success.

Students of the overall size of our population are in no agreement as to precisely what the size will be by the year 2,000 nor on what optimum population size for a nation such as ours would be. But, more recent projections suggest that the increase in our population over the next 30 years may be considerably less than the additional 100 million that had generally been forecasted. In fact, it may even be that the present rate of increase will slacken off so that we will reach the zero growth rate that some demographers have been advocating.

However, the issue of population distribution is a different matter, and one to be taken seriously regardless of what may be the upper limit of the population size. Our population has been concentrating increasingly, not only in cities, but more and more proportionately into a few rather large urban masses. This has resulted in a lowering of the quality of life in both urban and rural areas. Projection of such a migration pattern is actually a de facto distribution policy since it will affect such decisions as industrial plant location and other types of investment which will make the prophecy of increasing concentration self-fulfilling.

We have before us a set of decisions. One which appears not to be urgent is that of overall size of the population--even after the effects of a considerable amount of immigration are taken into account. Apropos of population distribution, we need to decide on whether or not we will adopt a deliberate strategy to encourage internal migration to negate the forecasts of ever-growing urban congestion in a few megalopolis. A viable option for such an alternate strategy is a policy of encouraging growth in alternate growth centers away from the large urban masses, coupled with a complementary effort of the use of new towns.

CHAPTER 3--ENVIRONMENT

Man is redefining his relationship to his environment. He has progressed from fearing, to understanding, to using, to abusing, and now to worrying about the physical and biological world about him. Throughout all but the very recent history of the United States, our relationship to the environment has been one of exploitation. We have seen our natural endowment as a source of riches to be extracted and used, or later, to be extracted and processed. Concern for the environment was generally limited to whether or not we were exhausting our inheritance of sources of food, energy, and materials.

The current interest in the environment has two distinctively novel emphases. The first is that the limitations that the environment places on our activities may not be on the input side (sources of food, energy, and materials), but on the output side (a place to dispose of our wastes). The second, which is closely related to the first, is that the environment, in addition to having a limited capacity to absorb wastes, is a complex ecological system in which intervention of an apparently minor sort can, and often does, have far-reaching consequences through a chain of unsuspected reactions.

Both of these aspects of thinking about the environment have important consequences on the way we think about other things. They raise the question of whether or not there may be an upper limit on our economic growth as a consequence of the limitations on how much waste can be absorbed. And, the model of complex ecological systems affects our whole way of thinking about the consequences of our action not only in the environmental sphere, but also in the social sphere where we are coming to realize that causation is just as complex.

Some scientists and other anxious citizens assume a doomsday model of the future in which increased economic production will drive us to our destruction. In response, others propose what is called a paradise-regained model which would return us almost to a state of nature. Fortunately, the doomsday model does not forecast that which is inevitable, and the latter, which would probably be unattainable if tolerable, need not be entertained.

A mixed strategy of response to our environmental problems is proposed. We need to expand our inadequate knowledge of ecological systems. But while expanding this knowledge, we must take those measures which we know are called for. We need to consider our current technological and economic alternatives in the light of long-range ecological balance. Additionally, we need to resolve conflicts between our demands for products and services, and the depletion and pollution generated by them.

The market mechanism can and should be used as one of the devices for regulating these demands. Government should play a role through appropriate regulations, taxes, subsidies, and standard setting. Since environmental problems and their solutions are of a global nature, we must and are beginning to act in concert with the other nations of the world.

Our environmental problems are a result of our technological and economic successes and of our philosophical view of nature. Now we must learn to use our technology and our economic output better to bring us in harmonious relationship to that environment. As will be found in other sections of this report, it is becoming apparent that the relatively narrow criteria by which we have, in the past, judged technical and economic progress must be expanded to consider a wider range of consequences.

CHAPTER 4--EDUCATION

We have an educational system that is in many respects unparalleled. It has grown in size and resources to the point where we have nearly universal education through the secondary schools and a proportion of our population attending institutions of higher education that is unprecedented. Yet, this system is under severe attack and criticism; it is seen as having been set up to serve the needs of an America that has greatly changed in the intervening years. There are many who argue that it is necessary for the schools to deemphasize quantitative expansion along traditional lines and emphasize adaptation to the needs of a rapidly changing society.

In the past, the public has equated going to school with education. The role of the school was to transmit information and instill traditional values. The society of today is one changing so rapidly that skills and information become outmoded, and traditional values are under challenge. Furthermore, the proportion of information that children receive from the mass media is so large and the range of values to which they are exposed so diverse that it may well be that the schools should be devoted to giving them the cognitive skills for integrating information, and a framework within which to sort out the diverse values to which they are exposed.

In addition to what may fundamentally be a new orientation demanded of the schools, they are being asked to respond to current problems in two ways. First, it is said that they should be relevant to the needs of the student, which is to say that they should teach him as an individual to be able to deal with contemporary problems. Second, the higher institutions of learning, in particular, are being asked to solve the present problems of society.

The choices with which the schools are confronted involved, on the one hand, teaching problem-solving skills, fostering the development of students as individuals, and conducting problem-oriented research. Or, on the other hand, there is the option of continuing to transmit the old knowledge and values at the primary and secondary levels, and continuing to transmit the traditional knowledge and seeking to develop knowledge for its own sake at the higher levels of education.

By and large, it would seem that we must look for some appropriate mix rather than shift over to a complete doctrine of relevance. In the meantime, we need to develop further understanding of the educational process and of how to evaluate it. We must further develop an experimental posture toward innovation in education which will reflect our basic uncertainty as to how to go about the many problems with which the educational system is faced.

All of the above holds for the educational system at large. With respect to the children of minority groups, we have the special task of ensuring equal educational opportunity, and of understanding and dealing with those special disadvantages which are imposed on them by their environment.

Taken all in all, the educational system, which is the crucial single institution for the development of our citizenry so that they can live happily, shape our system, wisely, and contribute to both the direction and rate of its growth, is in a state of severe stress. The educational system is having its own "growth" problems which, if not solved, will have a profound impact on the growth of the Nation as a whole.

CHAPTER 5--BASIC NATURAL SCIENCE

The American scientific establishment has grown and the capacities of its researchers have developed to the point that our capability in basic research has made us preeminent in the world. Having achieved that position, basic natural science finds itself in a crisis of both financial and social support. Historically, Federal funding, the main source of basic scientific research, has been large relative to the scientific resources available to do the work. In the recent past, as the scientific establishment continued to grow, the supply of funds leveled off so that the previous relationship has in effect been reversed. There is too little money relative to the number of scientists involved. At the same time, in the past half decade, scientists and their works began to come under fire as a result of the association of scientists with the military, and with industrial technology which has produced environmental pollution. In concert with these two developments, our national priorities have shifted to the solution of social problems, and basic scientists are being asked to shift their focus of work from the development of knowledge for its own sake to working on basic problems which have relevance for today's social issues.

The result is serious strain on an institution which furnishes us with our most fundamental understanding of ourselves and of our world, and which has been the source from which technology has evolved in recent times to serve economic growth. In the past few decades, we have been very successful in making basic science useful, but now we find ourselves in a crisis as to how to ensure its future usefulness, and of how to balance the long-range utility of basic knowledge with present urgent needs.

One of the major decisions with which we are faced is that of the level of support we will furnish basic science in the future. This is clouded by the problem of making basic research "useful" in the short run. It is in the nature of basic research that answers to practical problems may be found in unsuspected areas of inquiry. Some problem areas, at a given time, have a greater potential for exploitation than others. Setting research priorities on the grounds of probable utility is often a choice of possible short-term benefits against the longer-term ones which might result from a more rapid expansion of the basic pool of knowledge by permitting science to pursue the internal logic of its own development.

What is needed, and may in fact be developing, is a forum in which the partially conflicting needs for maintaining the integrity of the core of basic research and the practical needs of the society are resolved.

In conjunction with the need to work out an appropriate level and distribution of funding, we must face the fact that an articulate minority are attacking the very rationale and spirit of science and of rational inquiry itself--the most elementary tools man has for the orderly guidance of his affairs.

CHAPTER 6--TECHNOLOGY ASSESSMENT

The Nation's infatuation with technology is at a turning point as profound as that of its relationship to the environment. Historically, we have tended to do that which was technically possible, if it were economically advantageous, on the simple ground that this represented "progress." However, as technology has increased with great rapidity, it has forced on us increasing unplanned social change and environmental problems we did not anticipate and do not want. At the same time, our notions of the complexity of social and environmental problems have made us increasingly cautious with respect to the actions we plan to take.

Our level of affluence has given us a longer time perspective within which to assess the consequences of our actions. As with so many other of the debates with which we have been concerned, the technology assessment movement--which embodies this new attitude toward technology--asks us to judge our actions by a wider range of criteria than we have used in the past.

Formally, technology assessment is a term coined in the Congress to label a set of procedures to aid the Congress in making decisions for the orderly introduction of new technology and the evaluation of technology already in use. However, it is better viewed as a manifestation of a larger phenomenon of a decreasing willingness of both the public and its representatives to tolerate the undesirable side effects of things done in the name of progress. The public has protested effectively against the displacement of people by highways, aircraft noise, and the building of new powerplants. Specific actions have indicated that we have the disposition to forego immediate economic benefits in order to avoid social and environmental costs which once would have been accepted with no more than pro forma consideration. The existence of formal technology assessment, now in both the congressional and executive branches, is to be taken as no more than a specific manifestation of the broader concern.

There are major policy problems with the prospect of doing technology assessment in a formal fashion. One is that of establishing criteria for deciding which among all of the new technologies emerging shall be selected for assessment, and how inspections, standards, and controls shall be established. Another is the extent to which technology assessment shall become a "way of life" in the American economy with increased consideration of the second-order consequences of technology through all strata of decision making, both private and public. Most general, however, is the problem of how we will manage the impact of the possibility of technology's adverse effects with the demand for new technology to ensure economic development. Among other things, we may have to accelerate our efforts to detect new benign technology opportunities and facilitate their rapid introduction to offset the impact of inhibiting the introduction and use of harmful technology.

CHAPTER 7--CONSUMERISM

American business prides itself in its ability to develop, produce, and deliver a great flow of new technologically sophisticated products of a wide variety. Yet, its very success in this has produced a wave of complaints. There have been consumer movements in the past based on issues of product safety and quality, deceptive practices, monopolistic practices, aesthetics, and so on. However, what marks the new consumer movement as distinctive is that it features resentment that the stream of new products is so large and the differences among products so small that choice among them is said to have been made difficult. Furthermore, it is argued that the technical complexity of many of them is such that the untrained individual cannot evaluate them.

The result has been the evolution of a system of consumer protection which, since 1964, has featured commissions and special assistants at the highest levels of Government, increased activity in the regulatory agencies, and finally in 1969, a Presidential enunciation of a "Buyer's Bill of Rights." Laws have been passed and new standards set. Testing procedures have been tightened. Consumer information services have grown.

The anomaly of the present consumerism market is that a highly market-oriented economy has produced a situation, in which it is said by at least an influential minority, that the doctrine of consumer sovereignty--the nation that the consumer can regulate business by his free choices--is no longer tenable for some undefinable but sizable segment of the marketplace. Some extreme manifestations of this position would have a considerable impact on the way our economy runs. Already, the consumerism movement has had an important and probably beneficial influence on business practice. This movement consists of a myriad of small issues, but the large one confronting us is that of developing a proper policy posture that will give the desirable amount and kind of protection to the consumer and, at the same time, preserve a business environment in which the economy can continue to grow.

The consumerism movement has been regarded by some as a fad. It is important to note that the complaints which stimulate the present consumer concerns are an integral part of technologically sophisticated, market-oriented economy such as we have so deliberately developed in recent decades and which seems certain to continue.

CHAPTER 8--ECONOMIC CHOICE AND BALANCED GROWTH

The search for a policy of balanced growth has major implications for the allocation of economic resources and is crucially dependent upon economic growth. Conventional economic policy goals include full employment, an acceptable rate of growth, price stability, and a satisfactory balance of payments. Added to these now is a new set of goals under the vaguely defined label of "quality of life." These concerns mirror a desire by many Americans to create a society better able to enjoy what it produces, and to grow in ways harmonious with its physical environment.

The setting of new goals and the establishment of priorities among them are matters of social choice. Economic analysis can help in understanding some of the central aspects of these choices, but it cannot dictate the answers. The choices themselves are those of the people, expressed individually through their private institutions and through their governments. The key choices are among competing ends. Economic analysis can contribute toward the meeting of these ends once they are chosen, and an economic policy of sustained growth can make it possible for more of these ends to be achieved.

CHAPTER 9--TOWARD BALANCED GROWTH

This report is motivated by the President's explicit call for the development of a national growth policy. It is assumed that both the meaning and form of this policy will evolve and that contributions such as this are but steps in that direction. This report takes an inductive approach to the overall problem by identifying a number of issue areas in which it seems meaningful to say that a debate bearing on growth policy is taking place. The issues which were selected are those which the National Goals Research Staff judged would make a distinctive contribution to the Nation's awareness. An example of an exclusion might be that of urban problems, a subject truly essential to our growth, but a matter much discussed by others of greater competence on that topic.

The major lesson to be extracted from the substantive problems reviewed here is the high desirability of an explicit growth policy with a relatively long-term perspective. In instance after instance, it was found that today's problems are a result of successes as defined in yesterday's terms. The object lesson has not been that our institutions are incapable, but that in the past we set performance criteria for them in terms now recognized as too narrow but which at one time were appropriate. We have become widely aware of the second-order consequences of our action, and we have demonstrated our resolution to take them into account when we can anticipate them. What we need is increased ability to anticipate those consequences and an explicit policy framework within which to evaluate them.

The central ingredient in the development of a growth policy will be for the American people to decide just what sort of country they want this to be. This process is in being, as reflected in these debates. Hopefully, this report and other events will serve as vehicles to facilitate discussion and choice. To further facilitate this process, we will have to develop better institutional arrangements for the people to relate to the leadership and better mechanisms of policy analysis to serve all parties.

While it is clear that an explicit growth policy is desirable, it seems equally clear from these debates that it is likely that what will emerge is not a single policy but a package of policies consistent with each other, each designed to meet one or more of our national objectives. This package of policies will shape both the directions of our society and the balance among the many segments of society in terms of priorities and interrelationships. It will not be a set of policies which the government alone can develop and effect. It will be a set of policies which emerge from the decisions of the government and the people, and which, in turn, will affect the decisions of both the government and the people.

These are only a few examples of possible developments, many of which have begun or may begin to emerge in the 1970's. Many of these developments may not appear in the 1970's or even later, but the list suggests that, as we view the prospects for our Nation, we must broaden our vision to take into account a variety of developments which will bring many new dimensions to human experience.

As illustrated by these selected trends and forecasts, the 1970's promise to be a decade of extraordinary change. Our Nation in 1980 could be one in which cities are more clogged with immovable traffic, air is less breathable, streams polluted to the point where expensive processes will be necessary to get usable water, seashores deteriorating more rapidly, and our people suffering needlessly from having not developed the necessary institutional arrangements for achieving the promise of this decade of change.

On the other hand, America in 1980 can be a Nation which will have begun to restore its environment, to have more balanced distribution of regional economic development and of population; a Nation which has abolished hunger and many forms of social inequality and deprivation; and a Nation which will have begun to develop the new social institutions and instruments necessary to turn the promises of this decade of change into reality.

If we are to see the second of these possible futures realized in the America of 1980, we must begin now to define what we wish to have as our national goals, and to develop in both our public and private institutions the specific policies and programs which will move us toward these goals.

WELFARE MEASUREMENT AND THE GNP

Edward F. Denison*

Edward F. Denison is a Senior Fellow of The Brookings Institution, Washington, D. C.

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WELFARE MEASUREMENT AND THE GNP

Edward F. Denison

It would be enormously convenient to have a single, generally accepted index of the economic and social welfare of the people of the United States. A glance at it would tell us how much better or worse off we had become each year and each decade. We could judge the desirability of any proposed action by asking whether it would raise or lower this index.

Some recent discussion seems almost to imply that such an index could be constructed. Articles in the popular press even criticize GNP because it is not such a complete index of welfare, on the one hand ignoring the fact that it was never intended to be such an index, and on the other, suggesting that with appropriate changes it could be converted to one.

COMPONENTS OF A WELFARE MEASURE

A single, generally acceptable index of welfare cannot be constructed. This ought to be obvious, but it may be instructive to state some of the changes in society such a measure would have to encompass and the problems its compilers would face.

OUTPUT

The output available to satisfy our wants and needs is one important determinant of welfare. Whatever want, need, or social problem engages our attention, we ordinarily can more easily find resources to deal with it when output is large and growing than when it is not. GNP measures output fairly well. Net national product (NNP) measures it even better, provided that depreciation is calculated in a consistent and reasonable way. The capital stock study of the Office of Business Economics provides data that can be used to calculate NNP.

A myriad of different products must somehow be combined if one is to obtain a measure of total output. We can obtain a generally acceptable measure only because market prices provide weights to combine them that are widely accepted as reasonable and objective. The rationale is that, given the relative prices they face, people individually or collectively are free to spend their money in whatever way maximizes their satisfactions. If they preferred to do so, they could shift purchases from one product to another, substituting at the ratio of market prices.[1] If automobiles cost $3,000 and TV's $300, they could choose to buy another car and 10 fewer TV's, or the reverse.

GNP and NNP valued at constant prices permit measurement of changes in the quantity of output with products combined by use of prices in the base year (at present 1958). They are extremely useful measures. But users should understand their characteristics. Two of these seem to me to be the most important in qualifying their use in welfare measurement.

First, households, governments, and nonprofit organizations are regarded as the final users of the economy's output, and GNP and NNP measure the goods and services they buy.[2] How effectively they use their purchases is outside the purview of GNP or NNP. Soap, vacuum cleaners, washing machines, and the time of domestic servants bought by the housewife are measured, not how clean her house and linen may be. Similarly, the teachers' services, books, school buildings, etc., purchased by school systems are measured, as are the planes, ammunition, and soldiers' services bought by the Department of Defense; NNP does not tell how much education and national security are obtained per dollar (in 1958 prices) of expenditure for such items.

It is sometimes suggested that governments (and nonprofit organizations) should be treated as if they were businesses

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[1] In an economy with indirect taxes and subsidies, there is a complication which leads national accountants to construct two measures of national product. One, recommended for "welfare" questions, uses market prices as weights; the other, recommended for resource allocation problems and productivity measurement, uses factor cost values instead. For most questions and comparisons the choice makes little difference. When it matters, the appropriate choice can be made.

[2] I ignore here the net capital formation and net export components of NNP.

"selling" services to individuals. NNP in constant prices would include the services provided (measured in constant prices) instead of government purchases. Because most government purchases are for education and defense, this proposal requires ways to measure changes in the amounts of education and defense that are independent of government expenditures. But how? Educators and generals have found no acceptable procedure to make such an estimate, and until they do, it would be a bit absurd to expect the national accountant to do so. Present estimates of real GNP truly measure the services provided by governments only if the services provided per dollar of government purchases (in 1958 prices) are the same each year as in 1958.

The prospect for measuring the services a household secures from its purchases (when they are combined with the "labor" of household members, which is omitted from national product) as distinct from the value of its purchases seems at least equally remote.

The second characteristic concerns the "quality change problem." When expenditure for a new or improved product appears, it is counted as output equal to the quantity of previously existing products that could have been bought for the same expenditure (based on 1958 price ratios if the new product had appeared by then, otherwise on price ratios when it first entered price indexes).

Real NNP in 1950 was half that of 1968. This means that output in 1950 was half as big as the sum of (1) the quantity of products produced in 1968 that were the same as those produced in 1950 and (2) the quantity of 1950 products that could have been produced in 1968 by the resources that were actually used in 1968 to produce products that did not exist in 1950.

The change in real NNP understates the change in the ability of output to satisfy our wants because it ascribes no value to the increased range of products the economy is able to provide; for example, in 1968 medicines were available that did not exist at all in 1950. I am personally convinced that there is no way to measure this understatement not all economists agree.

Such characteristics, which in my view are not remediable, limit the accuracy of real product as a measure of changes over time in the ability of output to satisfy our wants.[3] Nevertheless, real product is a very useful measure. But to evaluate welfare we would need additional measures which would be far more difficult to construct.

REAL COSTS OF PRODUCTION

We would need an index of real costs incurred in production, because we are better off if we get the same output at less cost. The starting point for an index of labor costs exists in series for total man-hours worked, and we can also compute hours per capita or per worker. But use of man-hours for welfare evaluation would imply unreasonably that to increase total hours by raising the hours of eight women from 60 to 65 a week (coverage of the Maryland 60-hour law recently was reduced greatly) imposes no more burden than raising the hours of eight men from 40 to 45, or even than hiring one involuntarily unemployed man for 40 hours a week. A usable measure of the real costs of working would consider that the welfare benefits from working fewer hours decline as hours are shortened and may even disappear.[4]

A measure of real costs of labor would also have to consider working conditions. Most of us spend almost half our waking hours on the job and our welfare is vitally affected by the circumstances in which we pass those hours. From the beginning, labor unions have concerned themselves with "wages, hours, and working conditions." Only the first of these relates to the goods and services the worker can buy; the others relate to real costs. Perhaps it is under this heading, too, that the deaths and injuries from wartime service in the armed forces, and the disutility of involuntary service in the armed forces in war or peace, should be counted.

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[3] The two characteristics I have described result from changes over time in the kinds of end products that the state of knowledge permits the economy to provide, and in the skill of individuals and governments in utilizing their purchases to meet their objectives. They do not limit the significance of comparisons of alternative national products that might be obtained at a point in time under alternative conditions or policies unless these alternatives would affect such knowledge or skill.

[4] In this formulation I regard the real costs of working additional hours as including the loss of welfare resulting from less leisure time. If it is necessary to treat the two as separate items affecting welfare, the problem is still more complicated.

We have data on saving, but no measure of the real costs of what was once called "abstinence." And we have no acceptable way to combine the real costs of labor and abstinence.

NEEDS

To measure welfare we would need a measure of changes in the needs that our output must satisfy. One aspect, population change, is now handled, crudely, by converting output to a per capita basis on the assumption that, other things equal, twice as many people need twice as many goods and services to be equally well off.[5] Beyond this, an index of needs would account for differences in the requirements for living as the population becomes more urbanized or suburbanized; for the effect of weather changes on requirements for heat, air conditioning, and clothing; for medical requirements occasioned by epidemics or new diseases; and, most of all, for changes in national defense requirements. Such an index would have to tell us the difference between the cost of meeting our needs, to the extent that we do, in a base year, and the cost of meeting them equally well under the circumstances prevailing in every other year.

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[5] In my view, this is a tolerable assumption only if no change occurs in the composition of the population by age and family status. In the first place, requirements for individuals vary with age and marital status. Second, an intractable problem is created by the simple fact that a couple with two wanted children is not worse off than if it had no children and the family had twice the per capita income. Since the couple rejected that option they must be better off. Also, greater ability to control family size has surely improved welfare in a way that cannot be captured in any measure I know.

It is sometimes wrongly supposed that the necessity of taking account of some changes in needs can be obviated by omission from NNP of expenditures for purposes for which needs change: for example, by elimination of expenditures for local transportation, heat and air conditioning, health, or defense. This procedure fails utterly. It yields the false result that we are equally well off whether, in the same circumstances, we ride or must walk to work, freeze or are comfortable, do or do not obtain medical care when we are sick, or provide or do not provide for national security. Needs and provision to meet them must be separately evaluated.

THE ENVIRONMENT

Measures of "needs" shade into measures of the human and physical environment in which we live; perhaps it is here that the concept of economic welfare broadens to encompass "social welfare." We are all enormously affected by the people around us. Can we go where we like without fear of attack? Can we attend a lecture without its being disrupted? Will we be discriminated against? Are our neighbors congenial? We are also affected by the physical environment--purity of air and water, accessibility of park land, presence of trash or rats in our alleys, and all the other conditions receiving so much attention just now.

To measure the state of affairs with respect to any aspect of the human and physical environment requires adequate and accurate data. Such data are generally deficient in both quantity and quality, and collection and evaluation urgently need expansion. But, given data, construction of an index of the goodness or badness of almost any environmental aspect faces at least two serious problems.

First, relations between environmental conditions and welfare are rarely linear, and nonlinear relationships are hard to establish. A little air pollution is harmless, more an annoyance, a great deal lethal. Discrimination against Jews by a random 10 percent of employers, landlords, and operators of public places might be merely an annoyance to those affected; by 40 percent, a real hardship; by 90 percent, an economic and social catastrophe. The last situation is far more than nine times as undesirable as the first.

Second, if anything except the most detailed imaginable set of data is contemplated, weighting is required: To combine robberies and murders in a crime index; to combine pollution of the Potomac and pollution of Lake Erie in a water pollution index; to combine trash in Northeast Washington alleys and its absence on Route 70-S into a trash index. An expert in a field may be able to provide judgments with respect to the problems of nonlinearity and weights that would permit an interesting index to be calculated. However, the necessity for numerous individual judgments that are difficult to assess or even to describe must impair general acceptability of measures based upon them.

The absence of any natural weighting scheme is an even greater obstacle to combining indexes of crime, water pollution, racial discrimination, and the like into a single index. Personally, I see not basis at all for combining indexes of different aspects of the environment into a combined index that will command general acceptance. I can imagine only letting each individual in the country compute his own index with his own personal weights, and then averaging them. But even this procedure is almost sure to be biased because we are all concerned with the aspects of the environment that currently are problems. Who would now think to consider the dangers of attack by hostile Indians? Or the risk of being doused by slops thrown from windows as he walks the city streets? Even the very recent elimination of refrigerator doors that cannot be opened from within, and cost the lives of so many children, is almost forgotten. The annual series for "Persons Lynched" appeared in the Census Bureau's Historical Statistics but not in its current Statistical Abstract.

THE DISTRIBUTION OF INCOME

To measure welfare we would need an index of the "goodness" of the size distribution of income. There is probably a consensus that, given the same total income and output, a distribution with fewer families in poverty would be better than the present distribution, and possibly that less inequality throughout the distribution would be an improvement. There is no agreement on an ideal distribution, from which departures could be measured.

OTHER ASPECTS

The list I have presented is not exhaustive. I have ignored the hard fact that tastes differ among individuals and change over time. I have not yet recalled that welfare is affected by people's perception of reality as well as the objective facts; one's fear of crime on the streets need not be closely related to actual risks. The authors of "Toward a Social Report"[6] stressed the need for attitudinal data to develop welfare measures. I have not provided room for any of the pleasures and worries that are related to purely personal relationships and that for most people dominate all else in affecting their feeling of well-being.

IMPRACTICABILITY OF A GENERAL MEASURE OF WELFARE

Even if we could construct indexes of output, real costs, needs, the state of the environment, income distribution, and other relevant aspects of life, we could not compute a welfare index because we have no system of weights to combine them. Certainly statisticians and social scientists are in no position to assign weights.

The point to be stressed is that the situation is just the same as in making policy decisions in government, in business, in the family, or anywhere else. Most decisions that might be made have favorable and unfavorable effects on various aspects of life. Decision makers must try to determine the favorable and unfavorable effects of alternatives and then decide on their course of action. Economists, statisticians, and other social scientists can help determine what the effects are likely to be. But the responsible decision maker must decide how the favorable and unfavorable effects balance out, and different persons will decide differently. This is only another way of saying that a generally accepted weighting system does not exist.

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[6] U. S. Department of Health, Education, and Welfare, "Toward a Social Report" (January 1969).

COSTS OF GROWTH AND THE NATIONAL PRODUCT

It is fashionable to describe our environmental problems as costs of economic growth, and even to suggest that these costs should be deducted from GNP and NNP. I have no idea whether this would raise or lower the growth rate in any particular period. But a few observations are in order.

First, some of the objections to "growth" are to an increase in population (or its geographic concentration) and the resulting congestion. Over the last two centuries, it is true, increases in productivity have permitted population to increase and led to its doing so. But this relationship is increasingly uncertain; births, which are the chief population determinant in this country, do not now follow changes in per capita income in any predictable way. It is no longer possible to regard the increase in population, and whatever disadvantages it may bring, as the consequence of an increase in output; there is no presumption that less output would mean fewer people. Moreover, there is no unanimity as to whether population growth or the steps that would be required to curtail it are undesirable or desirable. Population increase has meant less space per person and has affected other aspects of life adversely in the view of many people. Others stress the pleasures derived from children; almost none would like a higher death rate; and immigration, which has contributed importantly even to recent population growth, has presumably meant a better life for the immigrants.

Second, many aspects of the environment are only remotely, if at all, connected with the amount of production or income; and when they are, it is by no means obvious that high income worsens rather than improves the environment. Would such problems of the human environment as crime, drugs, student unrest, racial tension, and labor-management conflicts now be absent or even smaller if output and income had increased less than they did in the past decade or two? It seems unlikely.

I now turn to what clearly are environmental costs associated with production. Air and water pollution, the volume of solid waste, and other undesirable aspects of the physical environment have been increased by economic growth or, more accurately, by the increase in the production and use of particular products which have been produced and used in particular ways. Given an index of the state of the environment, a complete welfare evaluation would not require knowledge of the extent to which changes in this index were the result of production. Nevertheless, the idea of measuring the net gain from production by balancing the value of the deterioration of the physical environment caused by production against the value of greater output is attractive. The value of this deterioration could then be deducted from NNP to obtain what many would regard as a better measure of net output. But implementation of this suggestion would requite an objective measurement of the value of the deterioration expressed as a dollar amount. Such a valuation does not exist, and its estimation would encounter all the problems involved in measuring the goodness of the environment plus those of deciding what portion of changes in its goodness were due to production.

At this point, let me emphasize that expenditures actually incurred to preserve or improve the environment are not at all the same thing as the value of the deterioration of the environment that is caused by production. Such expenditures must not be deducted in lieu of the value of the deterioration caused by production. To do this would mean that the more we diverted our resources and output from other uses to improvement of the environment, the smaller would be GNP and NNP. This surely is not a desirable result.

Fortunately, GNP and NNP are not reduced by diversion of resources from other uses to environmental improvement when the costs are borne by government or by consumers because expenditures by these groups are counted as final products. (This generalization includes such cases as the addition of antipollution devices to automobiles because in the national accounts the addition is regarded as increasing the quantity, rather than the price, of cars.)[7]

GNP and NNP can be regarded as providing defective measures of changes in output when expenditures to protect the environment are incurred by business in the form of current costs. Such purchases are not themselves counted as final products and they absorb resources that would otherwise be used to produce products that are counted as final. Steps already taken, and adoption of additional proposals, to increase expenditures for environmental control of this type will have the effect of reducing real output and productivity, as measured, below the values they would take if resources were not so diverted. Business expenditures for the safety of employees, which are also likely to rise as a result of new legislation, will have the same effect. The reduction in measured output could be avoided only by isolating business expenditures for these purposes and adding them to national product as final product. Such a solution is not, I fear, feasible because such a classification of business expenditures would encounter distinctions that are gradual and blurred. What we would need to know is the amount by which business unit costs exceed the theoretical minimum that could be achieved if production were to be conducted with no regard at all to the external environment or to employee welfare--implying no laws, no community pressure, and no conscience. Such a situation has never prevailed and is difficult even to imagine. What perhaps can be done, and should surely be attempted, is to start now to collect information on changes in expenditures for environmental and employee protection that will occur in the future. Even if such information does not lead or enable us to change the measure of output, it will enable us to interpret better the changes in output and productivity that we observe in the future as well as to know the true costs of the new programs.

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[7] Neither are GNP and NNP reduced, in the first instance, when business makes capital outlays for this purpose. But in the case of business capital outlays NNP is eventually reduced by a rise in depreciation, just as it is in the case to which I turn next.

IMPLICATIONS FOR STATISTICS

We need, can obtain, and should obtain additional information, including statistics, on many aspects of American life that affect welfare. We can and should explore ways of presenting and analyzing such information in a comprehensible form. Some of this research could well be performed by individuals familiar with estimation of the national accounts, because some of the statistical and conceptual problems are similar. However, we cannot obtain a comprehensive index of welfare.

There are likely to be pressures to make ad hoc changes in the existing national product measures that, it is supposed, will move the national product series closer to a complete welfare measure in one way or another. Such suggestions should be welcomed if they improve the measurement of the Nation's output. I would myself urge regular publication of series for NNP and national income, as well as GNP, in constant prices. But some suggestions to change the measurement of national product will derive from confusion between an output measure and a comprehensive welfare measure. Such proposals must be rejected. GNP and NNP cannot be transformed into a comprehensive welfare measure. Efforts to do so can only impair their usefulness for the very important purposes of both long-term and short-term analysis that they now serve well.

TOWARD A SOCIAL REPORT:
INTRODUCTION AND SUMMARY

U. S. Department of Health, Education,
and Welfare

Toward a Social Report, U. S. Department of Health, Education, and Welfare, Washington, D. C.: U. S. Government Printing Office, January 1969, pp. xi-xxii.

TOWARD A SOCIAL REPORT:
INTRODUCTION AND SUMMARY

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and Welfare

The Nation has no comprehensive set of statistics reflecting social progress or retrogression. There is no Government procedure for periodic stocktaking of the social health of the Nation. The Government makes no Social Report.

We do have an Economic Report, required by statute, in which the President and his Council of Economic Advisors report to the Nation on its economic health. We also have a comprehensive set of economic indicators widely thought to be sensitive and reliable. Statistics on the National Income and its component parts, on employment and unemployment, on retail and wholesale prices, and on the balance of payments are collected annually, quarterly, monthly, sometimes even weekly. These economic indicators are watched by Government officials and private citizens alike as closely as a surgeon watches a fever chart for indications of a change in the patient's condition.

Although nations got along without economic indicators for centuries, it is hard to imagine doing without them now. It is hard to imagine governments and businesses operating without answers to questions which seem as ordinary as: What is happening to retail prices? Is National Income rising? Is unemployment higher in Chicago than in Detroit? Is our balance of payments improving?

Indeed, economic indicators have become so much a part of our thinking that we have tended to equate a rising National Income with national well-being. Many are surprised to find unrest and discontent growing at a time when National Income is rising so rapidly. It seems paradoxical that the economic indicators are generally registering continued progress - rising income, low unemployment - while the streets and the newspapers are full of evidence of growing discontent - burning and looting in the ghetto, strife on the campus, crime in the street, alienation and defiance among the young.

Why have income and disaffection increased at the same time? One reason is that the recent improvement in standards of living, along with new social legislation, have generated new expectations - expectations that have risen faster than reality could improve. The result has been disappointment and disaffection among a sizeable number of Americans.

It is not misery, but advance, that fosters hope and raises expectations. It has been wisely said that the conservatism of the destitute is as profound as that of the privileged. If the Negro American did not protest as much in earlier periods of history as today, it was not for lack of cause, but for lack of hope. If in earlier periods of history we had few programs to help the poor, it was not for lack of poverty, but because society did not care and was not under pressure to help the poor. If the college students of the fifties did not protest as often as those of today, it was not for lack of evils to condemn, but probably because hope and idealism were weaker then.

The correlation between improvement and disaffection is not new. Alexis de Tocqueville observed such a relationship in eighteenth century France: "The evil which was suffered patiently as inevitable, seems unendurable as soon as the idea of escaping from it crosses men's minds. All the abuses then removed call attention to those that remain, and they now appear more galling. The evil, it is true, has become less, but sensibility to it has become more acute."

Another part of the explanation of the paradox of prosperity and rising discontent is clearly that "money isn't everything." Prosperity itself brings its own problems. Congestion, noise, and pollution are by-products of economic growth which make the world less livable. The large organizations which are necessary to harness modern technology make the individual feel small and impotent. The concentration on production and profit necessary to economic growth breeds tension, venality, and neglect of "the finer things."

WHY A SOCIAL REPORT OR SET OF SOCIAL INDICATORS?

Curiosity about our social condition would by itself justify an attempt to assess the social health of the Nation. Many people want answers to questions like these: Are we getting healthier? Is pollution increasing? Do children learn more than they used to? Do people have more satisfying jobs than they used to? Is crime increasing? How many people are really alienated? Is the American dream of rags to riches a reality? We are interested in the answers to such questions partly because they would tell us a good deal about our individual and social well-being. Just as we need to measure our incomes, so we need "social indicators," or measure of other dimensions of our welfare, to get an idea how well off we really are.

A social report with a set of social indicators could not only satisfy our curiosity about how well we are doing, but it could also improve public policymaking in at least two ways. First, it could give social problems more visibility and thus make possible more informed judgments about national priorities. Second, by providing insight into how different measures of national well-being are changing, it might ultimately make possible a better evaluation of what public programs are accomplishing.

The existing situation in areas with which public policy must deal is often unclear, not only to the citizenry in general, but to officialdom as well. The normal processes of journalism and the observations of daily life do not allow a complete or balanced view of the condition of the society. Different problems have different degrees of visibility.

The visibility of a social problem can depend, for example, upon its "news value" or potential drama. The Nation's progress in the space race and the need for space research get a lot of publicity because of the adventure inherent in manned space exploration. Television and tabloid remind us almost daily of the problems of crime, drugs, riots, and sexual misadventure. The rate of infant mortality may be a good measure of the condition of a society but this rate is rarely mentioned in the public press, or even perceived as a public problem. The experience of parents (or infants) does not insure that the problem of infant mortality is perceived as a social problem; only when we know that more than a dozen nations have lower rates of infant mortality than the United States can we begin to make a valid judgment about the condition of this aspect of American society.

Moreover, some groups in our society are well organized, but others are not. This means that the problems of some groups are articulated and advertised, whereas the problems of others are not. Public problems also differ in the extent to which they are immediately evident to the "naked eye." A natural disaster or overcrowding of the highways will be immediately obvious. But ineffectiveness of an educational system or the alienation of youth and minority groups is often evident only when it is too late.

Besides developing measures of the social conditions we care about we also need to see how these measures are changing in response to public programs. If we mount a major program to provide prenatal and maternity care for mothers, does infant mortality go down? If we channel new resources into special programs for educating poor children, does their performance in school eventually increase? If we mount a "war on poverty," what happens to the number of poor people? If we enact new regulations against the emission of pollutants, does pollution diminish?

These are not easy questions, since all major social problems are influenced by many things besides governmental action, and it is hard to disentangle the different effects of different causal factors. But at least in the long run evaluation of the effectiveness of public programs will be improved if we have social indicators to tell us how social conditions are changing.

The present volume is not a social report. It is a step in the direction of a social report and the development of a comprehensive set of social indicators.

The report represents an attempt, on the part of social scientists, to look at several important areas and digest what is known about progress toward generally accepted goals. The areas treated in this way are health, social mobility, the condition of the physical environment, income and poverty, public order and safety, and learning, science, and art.

There is also a chapter on participation in social institutions, but because of the lack of measures of improvement or retrogression in this area, it aspires to do no more than pose important questions.

Even the chapters included leave many - perhaps most - questions unanswered. We have measures of death and illness, but no measures of physical vigor or mental health. We have measures of the level and distribution of income, but no measures of the satisfaction that income brings. We have measures of air and water pollution, but no way to tell whether our environment is, on balance, becoming uglier or more beautiful. We have some clues about the test performance of children, but no information about their creativity or attitude toward intellectual endeavor. We have often spoken of the condition of Negro Americans, but have not had the data needed to report on Hispanic Americans, American Indians, or other ethnic minorities.

If the Nation is to be able to do better social reporting in the future, and do justice to all of the problems that have not been treated here, it will need a wide variety of information that is not available now. It will need not only statistics on additional aspects of the condition of the Nation as a whole, but also information on different groups of Americans. It will need more data on the aged, on youth, and on women, as well as on ethnic minorities. It will need information not only on objective conditions, but also on how different groups of Americans perceive the conditions in which they find themselves.

We shall now summarize each of the chapters in turn.

HEALTH AND ILLNESS

There have been dramatic increases in health and life expectancy in the twentieth century, but they have been mainly the result of developments whose immediate effect has been on the younger age groups. The expectancy of life at birth in the United States has increased from 47. 3 years at the turn of the century to 70. 5 years in 1967, or by well over 20 years. The number of expected years of life remaining at age 5 has increased by about 12 years, and that at age 25 about 9 years, but that at age 65 not even 3 years. Modern medicine and standards of living have evidently been able to do a great deal for the young, and especially the very young, but not so much for the old.

This dramatic improvement had slowed down by the early fifties. Since then it has been difficult to say whether our health and life status have been improving or not. Some diseases are becoming less common and others are becoming more common, and life expectancy has changed rather little. We can get some idea whether or not there has been improvement on balance by calculating the "expectancy of healthy life" (i. e., life expectancy free of bed-disability and institutionalization). The expectancy of healthy life at birth seems to have improved a trifle since 1957, the first year for which the needed data are available, but certainly not as much as the improvements in medical knowledge and standards of living might have led us to hope.

The American people have almost certainly not exploited all of the potential for better health inherent in existing medical knowledge and standards of living. This is suggested by the fact that Negro Americans have on the average about seven years less expectancy of healthy life than whites, and the fact that at least 15 nations have longer life expectancy at birth than we do.

Why are we not as healthy as we could be? Though our style of life (lack of exercise, smoking, stress, etc.) is partly responsible, there is evidence which strongly suggests that social and economic deprivation and the uneven distribution of medical care are a large part of the problem.

Though the passage of Medicare legislation has assured many older Americans that they can afford the medical care they need, the steps to improve the access to medical care for the young have been much less extensive.

The Nation's system of financing medical care also provides an incentive for the relative underuse of preventive, as opposed to curative and ameliorative, care. Medical insurance may reimburse a patient for the hospital care he gets, but rarely for the checkup that might have kept him well. Our system of relief for the medically indigent, and the fee-for-service method of physician payment, similarly provide no inducements for adequate preventive care.

The emphasis on curative care means that hospitals are sometimes used when some less intensive form of care would do as well. This overuse of hospitals is one of the factors responsible for the extraordinary increases in the price of hospital care.

Between June 1967 and June 1968, hospital daily service charges increased by 12 percent, and in the previous 12 months they increased by almost 22 percent. Physicians' fees have not increased as much - they rose by 5 1/2 percent between June 1967 and June 1968 - but they still rose more than the general price level. Medical care prices in the aggregate rose at an annual rate of 6.5 percent during 1965-67.

SOCIAL MOBILITY

The belief that no individual should be denied the opportunity to better his condition because of the circumstances of his birth continues to be one of the foundation stones in the structure of American values. But is the actual degree of opportunity and social mobility as great now as it has been?

It was possible to get a partial answer to this question from a survey which asked a sample of American men about their fathers' usual occupations as well as about their own job characteristics. Estimates based on these data suggest that opportunity to rise to an occupation with a higher relative status has not been declining in recent years, and might even have increased slightly. They also show that by far the largest part of the variation in occupational status was explained by factors other than the occupation of the father.

These encouraging findings, in the face of many factors that everyday observation suggest must limit opportunity, are probably due in part to the expansion of educational opportunities. There is some tendency for the sons of those of high education and status to obtain more education than others (an extra year of schooling for the father means on the average an extra 0. 3 or 0. 4 of a year of education for the son), and this additional education brings somewhat higher occupational status on the average. However, the variations in education that are not explained by the socioeconomic status of the father, and the effects that these variations have on occupational status, are much larger. Thus, on balance, increased education seems to have increased opportunity and upward mobility.

There is one dramatic exception to the finding that opportunity is generally available. The opportunity of Negroes appears to be restricted to a very great extent by current race discrimination and other factors specifically related to race. Though it is true that the average adult Negro comes from a family with a lower socioeconomic status than the average white, and has had fewer years of schooling, and that these and other "background" factors reduce his income, it does not appear to be possible to explain anything like all of the difference in income between blacks and whites in terms of such background factors. After a variety of background factors that impair the qualifications of the average Negro are taken into account, there remains a difference in income of over $1, 400 that is difficult to explain without reference to current discrimination. So is the fact that a high status Negro is less likely to be able to pass his status on to his son than is a high status white. A number of other studies tend to add to the evidence that there is continuing discrimination in employment, as does the relationship between Federal employment and contracts (with their equal opportunity provisions) and the above-average proportion of Negroes in high status jobs.

The implication of all this is that the American commitment to opportunity is within sight of being honored in the case of whites, but that it is very far indeed from being honored for the Negro. In addition to the handicaps that arise out of history and past discrimination, the Negro also continues to obtain less reward for his qualifications than he would if he were white.

THE PHYSICAL ENVIRONMENT

This chapter deals with the pollution of the natural environment, and with the man-made, physical environment provided by our housing and the structure of our cities.

Pollution seems to be many problems in many places--air pollution in some communities, water pollution in others, automobile junk yards and other solid wastes in still other places. These seemingly desperate problems can be tied together by one basic fact: The total weight of materials taken into the economy from nature must equal the total weight of materials ultimately discharged as wastes plus any materials recycled.

This means that, given the level and composition of the resources used by the economy, and the degree of recycling, any reduction in one form of waste discharge must be ultimately accompanied by an increase in the discharge of some other kind of waste. For example, some air pollution can be prevented by washing out the particles - but this can mean water pollution, or alternatively solid wastes.

Since the economy does not destroy the matter it absorbs there will be a tendency for the pollution problem to increase with the growth of population and economic activity. In 1965 the transportation system in the United States produced 76 million tons of five major pollutants. If the transportation technology used does not greatly change, the problem of air pollution may be expected to rise with the growth and the number of automobiles, airplanes, and so on. Similarly, the industrial sector of the economy has been growing at about 4-1/2 percent per year. This suggests that if this rate of growth were to continue, industrial production would have increased tenfold by the year 2020, and that in the absence of new methods and policies, industrial wastes would have risen by a like proportion.

The chapter presents some measures of air and water pollution indicating that unsatisfactorily high levels of pollution exist in many places. There can be little doubt that pollution is a significant problem already, and that this is an area in which, at least in the absence of timely reporting and intelligent policy, the condition of society can all too easily deteriorate.

As we shift perspective from the natural environment to the housing that shelters us from it, we see a more encouraging trend. The physical quality of the housing in the country is improving steadily, in city center and suburb alike. In 1960, 84 percent of the dwelling units in the country were described as "structurally sound;" in 1966, this percentage had risen to 90 percent. In center cities the percentage had risen from 80 percent in 1960 to 93 percent in 1966. In 1950, 16 percent of the nation's housing was "overcrowded" in the sense that it contained 1.01 or more persons per room. But by 1960, only 12 percent of the nation's housing supply was overcrowded by this standard.

The principal reason for this improvement was the increased per capita income and demand for housing. About 11-1/2 million new housing units were started in the United States between 1960 and 1967, and the figures on the declining proportions of structurally unsound and overcrowded dwelling, even in central cities, suggest that this new construction increased the supply of housing available to people at all income levels.

Even though the housing stock is improving, racial segregation and other barriers keep many Americans from moving into the housing that is being built or vacated, and deny them a full share in the benefits of the improvement in the Nation's housing supply.

INCOME AND POVERTY

The Gross National Product in the United States is about $1,000 higher per person than that of Sweden, the second highest nation. In 1969 our GNP should exceed $900 billion. Personal income has quadrupled in this century, even after allowing for changes in population and the value of money.

Generally speaking, however, the distribution of income in the United States has remained practically unchanged over the last 20 years. Although the distribution of income has been relatively stable, the rise in income levels has meant that the number of persons below the poverty line has declined. The poor numbered 40 million in 1960 and 26 million in 1967.

A continuation of present trends, however, would by no means eliminate poverty. The principal cause of the decline has been an increase in earnings. But some of the poor are unable to work because they are too young, too old, disabled or otherwise prevented from doing so. They would not, therefore, be directly helped by increased levels of wages and earnings in the economy as a whole. Moreover, even the working poor will continue to account for a substantial number of persons by 1974: about 5 million by most recent estimates. This latter group is not now generally eligible for income supplementation.

The Nation's present system of income maintenance is badly in need of reform. It is inadequate to the needs of those who do receive aid and millions of persons are omitted altogether.

This chapter concludes with an analysis of existing programs and a discussion of new proposals which have been put forward in recent years as solutions to the welfare crisis.

PUBLIC ORDER AND SAFETY

The concern about public order and safety in the United States is greater now than it has been in some time.

The compilations of the Federal Bureau of Investigation shown an increase in major crimes of 13 percent in 1964, 6 percent in 1965, 11 percent in 1966, and 17 percent in 1967. And studies undertaken for the President's Crime Commission in 1965 indicate that several times as many crimes occur as are reported.

Crime is concentrated among the poor. Both its perpetrators and its victims are more likely to be residents of the poverty areas of central cities than of suburbs and rural areas. Many of those residents in the urban ghettoes are Negroes. Negroes have much higher arrest rates than whites, but it is less widely known that Negroes also have higher rates of victimization than whites of any income group.

Young people commit a disproportionate share of crimes. Part of the recent increase in crime rates can be attributed to the growing proportion of young people in the population. At the same time, the propensity of youth to commit crime appears to be increasing.

Fear of apprehension and punishment undoubtedly deters some crime. The crime rate in a neighborhood drops with much more intensive policing. But crime and disorder tend to center among young people in ghetto areas, where the prospects for legitimate and socially useful activity are poorest. It seems unlikely that harsher punishment, a strengthening of public prosecutors, or more police can, by themselves, prevent either individual crime or civil disorder. The objective opportunities for the poor, and their attitudes toward the police and the law, must also change before the problems can be solved.

LEARNING, SCIENCE, AND ART

The state of the Nation depends to a great degree on how much our children learn, and on what our scientists and artists create. Learning, discovery, and creativity are not only valued in themselves, but are also resources that are important for the Nation's future.

In view of the importance of education, it might be supposed that there would be many assessments of what or how much American children learn. But this is not in fact the case. The standard sources of educational statistics give us hundreds of pages on the resources used for schooling, but almost no information at all on the extent to which these resources have achieved their purpose.

It is possible to get some insight into whether American children are learning more than children of the same age did earlier from a variety of achievement tests that are given throughout the country, mainly to judge individual students and classes. These tests suggest that there may have been a significant improvement in test score performance of children since the 1950's.

When the chapter turns to the learning and education of the poor and the disadvantaged, the results are less encouraging. Groups that suffer social and economic deprivation systematically learn less than those who have more comfortable backgrounds.

Even when they do as well on achievement tests, they are much less likely to go on to college. Of those high school seniors who are in the top one-fifth in terms of academic ability, 95 percent will ultimately go on to college if their parents are in the top socioeconomic quartile, but only half of the equally able students from the bottom socioeconomic quartile will attend college. Students from the top socioeconomic quartile are five times as likely to go to graduate school as comparably able students from the bottom socioeconomic quartile.

It is more difficult to assess the state of science and art than the learning of American youth. But two factors nonetheless emerge rather clearly. One is that American science is advancing at a most rapid rate, and appears to be doing very well in relation to other countries. The Nation's "technological balance of payments," for example, suggests that we have a considerable lead over other countries in technological know-how.

The other point that emerges with reasonable clarity is that, however vibrant the cultural life of the Nation may be, many of the live or performing arts are in financial difficulty. Since there is essentially no increase in productivity in live performances (it will always take four musicians for a quartet), and increasing productivity in the rest of the economy continually makes earnings in the society rise, the relative cost of live performances tends to go up steadily. This can be a significant public problem, at least in those cases where a large number of live performances is needed to insure that promising artists get the training and opportunity they need to realize their full potential.

PARTICIPATION AND ALIENATION: WHAT WE NEED TO LEARN

Americans are concerned, not only about progress along the dimensions that have so far been described, but also about the special functions that our political and social institutions perform. It matters whether goals have been achieved in a democratic or a totalitarian way, and whether the group relationships in our society are harmonious and satisfying.

Unfortunately, the data on the performance of our political and social institutions are uniquely scanty. The chapter on "Participation and Alienation" cannot even hope to do much more than ask the right questions. But such questioning is also of use, for it can remind us of the range of considerations we should keep in mind when setting public policy, and encourage the collection of the needed data in the future.

Perhaps the most obvious function that we expect our institutions to perform is that of protecting our individual freedom.

Individual liberty is not only important in itself, but also necessary to the viability of a democratic political system. Freedom can be abridged not only by government action, but also by the social and economic ostracism and discrimination that results from popular intolerance. There is accordingly a need for survey data that can discern any major changes in the degree of tolerance and in the willingness to state unpopular points of view, as well as information about the legal enforcement of constitutional guarantees.

Though liberty gives us the scope we need to achieve our individual purposes, it does not by itself satisfy the need for congenial social relationships and a sense of belonging. The chapter presents evidence which suggests (but does not prove) that at least many people not only enjoy, but also need, a clear sense of belonging, a feeling of attachment to some social group.

There is evidence for this conjecture in the relationship between family status, health, and death rates. In general, married people have lower age-adjusted death rates, lower rates of usage of facilities for the mentally ill, lower suicide rates, and probably also lower rates of alcoholism than those who have been widowed, divorced, or remained single. It is, of course, possible that those who are physically or mentally ill are less likely to find marriage partners, and that this explains part of the correlation. But the pattern of results, and especially the particularly high rates of those who are widowed, strongly suggest that this could not be the whole story.

There are also fragments of evidence which suggest that those who do not normally belong to voluntary organizations, cohesive neighborhoods, families, or other social groupings probably tend to have somewhat higher levels of "alienation" than other Americans.

Some surveys suggest that Negroes, and white with high degrees of racial prejudice, are more likely to be alienated than other Americans. This, in turn, suggests that alienation has some importance for the cohesion of American society, and that the extent of group participation and the sense of community are important aspects of the condition of the Nation. If this is true, it follows that we need much more information about these aspects of the life of our society.

It is a basic precept of a democratic society that citizens should have equal rights in the political and organizational life of the society. Thus there is also a need for more and better information about the extent to which all Americans enjoy equality before the law, equal franchise, and fair access to public services and utilities. The growth of large scale, bureaucratic organizations, the difficulties many Americans (especially those with the least education and confidence) have in dealing with such organizations, and the resulting demands for democratic participation make the need for better information on this problem particularly urgent.

* * * *

Though almost all Americans want progress along each of the dimensions of well being discussed in this Report, the Nation cannot make rapid progress along all of them at once. That would take more resources than we have. The Nation must decide which objectives should have the higher priorities, and choose the most efficient programs for attaining these objectives. Social reporting cannot make the hard choices the Nation must make any easier, but ultimately it can help to insure that they are not made in ignorance of the Nation's needs.

V. QOL: PSYCHOLOGICAL PERSPECTIVES

A HIERARCHY OF NEEDS AND VALUES

Graham T. T. Molitor

Mr. Molitor is Director of Government Relations at General Mills, Inc.

Extracted from "Evolution of Socio-Economic Organization--A Structural Underpinning for Understanding Societal Value" by Graham T. T. Molitor. Presented to: Ad Hoc Interagency Committee on Futures Research, April 20, 1972.

A HIERARCHY OF NEEDS AND VALUES

Graham T. T. Molitor

One recent prediction states that "within less than a generation in the United States two percent of the population may be able to produce all the food and manufactured goods." The statement, perhaps extreme, dramatically makes the point that the traditional industries--agricultural and manufacturing--are declining in terms of the commitment of human resources, while output continues to increase at incredible rates.

Agrarian pursuits at an early stage in national development involved perhaps 90% of the labor force. Underdeveloped nations nearly 100% of the populace may be so committed, even today. As recently as the turn of the century some 35% of America's workers were involved in agriculture. Today only 4.4% of the labor force is involved and--realistically--that figure might decline to 2% by the year 2000. Agriculture has passed from an atomistic, labor intensive activity to a large-scale, capital intensive kind of operation.

Agriculture's biggest problem is no longer scarcity, but rather abundance. So prodigious is the output that a welter of laws actually restrain output, restrict acreage, discourage planting, and ban importation of competing foreign products. Despite all this, America not only has enough food to go around, but is capable of feeding a sizable portion of the world, as well.

Manufactured goods production seems headed the same way.

The industrial stage in economic evolution dominated until the 1950's when the post-industrial or service economy emerged. In about 1956 America became the first nation in all the history of the industrialized world where the number of manual or blue collar workers was exceeded by so-called while collared occupations. Around 1956, the service-producing industries (trade, finance, services, real estate, public utilities, transportation, and government) took the lead over jobs in the goods-producing industries.

The service economy has been born. Presently some 24% of the labor force are blue collar workers. The number may decline downward to some 11% before the end of this century.

The steady eclipse of traditional industrial pursuits--agriculture and manufacturing--brings on many significant changes that will profoundly alter the business structure, and our values systems.

- Incentives to discourage people from working may be devised.
- Work may become a privilege and a coveted status symbol, not a necessity.
- Life without work from cradle to grave may be possible.
- Use of leisure time may become our main preoccupation.
- An economy of abundance, not one of scarcity may prevail.
- Undreamed of equality, of economic sharing may become possible.

One prominent writer (Peter Drucker) has predicted the emerging post-industrial state will be dominated by knowledge/information industries. If matters of the mind and intellectual genius become tomorrow's dominant resource, it means that individuals will enjoy a new perminence and importance. A new era of humanism may be in prospect.

Such changes may alter traditional concepts of property. In a knowledge-based society the traditional wealth generating mechanisms of property and physical resources are no longer the central or crucial assets--the new resource will be the intellect, a very highly individualized kind of inner resource.

In turn, this could bring about the "reprivatization" of industry. Economic activity will no longer be dependent upon huge aggregations of property and wealth. Instead, new economic pursuits will be based upon the individual intellect. New opportunities for small, individual entrepreneurships--cottage industries--may flourish. In this process, not only may the composition of the work force change, but the very structure of organized economic activity may be radically reformed.

Ramifications of the knowledge industries becoming the dominant economic activity of the future are broad scale.

Tomorrow's critical shortage will be knowledge. Electrical data processing makes possible a global sharing and centralization of man's collective wisdom--such a "global data bank" will bring new intellectual horizons within grasp. In the ensuing competition for men's minds world-wide brain drains might come about.

Assuming education will remain primarily a government-operated service activity, the main enterprise of tomorrow takes on a statist or socialized cast. Such a turn of events may bring the economies--and interests--of the recognized socialist and even the communist countries ever closer together to the capitalist ones.

THE CHANGING CHARACTER OF SOCIOECONOMIC ACTIVITY

Whatever the exact outcome, some broad outlines of the changing character of socioeconomic activity are becoming apparent. Already well underway are the following basic shifts:

- From primary and secondary industries (agriculture/manufacturing) to tertiary and quaternary industries (service/knowledge activities)
- From Maslowian values posited on survival to security, then belongingness and esteem, and ultimately to self-actualization
- From goods to services
- From goods/services produced by muscle power to those produced by machines and cybernetics
- From unassisted brainpower to knowledge assisted and amplified by EDP
- From materialistic to the sensate
- From "things" to experiences

- From basic necessities then to amenities and eventually to a higher order of sensate needs
- From physiological to psychological needs
- From scientific emphasis based on physical, "hard" sciences to one based on social, "soft" sciences
- From "have not" (poverty) to "have" (shared abundance; egalitarianism)
- From quantity to quality
- From a few innovative technological introductions to vast and varied new inventions
- From scarcity to abundance and eventually to super abundance
- From a few stark choices to a bewildering array of choices
- From durability to disposables and planned obsolescence and back to recyclables, reclaimables
- From ownership to rentalism
- From self-interest motivation to broader social and humanitarian outlook
- From independence and self-sufficiency to interdependence
- From generalists to specialists
- From individual freedom to voluntary restraints to mandatory restraints
- From profit-mindedness to balanced consideration of social responsibilities and the public interest
- From Puritan hard-work ethic to leisure as a matter of right
- From Darwinian self-survival to humanistic security

- From atomistic to large-scale pluralistic institutions
- From national to multi-national and "one-world" scale operations
- From decentralization to centralization and eventual globalization
- From the simple to the complex
- From the obvious to subtle, non-discernible (X-rays, radiation)
- From irrational chaos to logical planning

EPOCHAL CHANGE

Americans are experiencing an epochal transmutation of the society they live in. Many don't even know it, although intuitively they may be aware of it. In the following comments I will begin to describe some of the powerful structural forces giving rise to the epochal transition period America is going through.

A post-industrial values revolution is at the bottom of the baffling succession of anti-thesis that are crowding in upon us all--anti-establishmentarianism, anti-materialism, rejection of the Puritan ethic of hard work, radicalization, counter-culture. The most important change is the massive search for QUALITY.

The sharp shift in values which is revolutionizing consumer behavior has been brought on--basically--by unprecedented affluence and abundance. An enormous middle and upper class, the largest ever known in the history of mankind (including some 90% of all Americans) are in the process of defining new goals with which are associated higher values. The new framework of human values involves satisfying ever-higher human needs.

Through an understanding of this constant human upgrading process--a constant striving to continually improve the social lot of mankind--we can appreciate the forces of consumerism which seem to be demanding more and more rational information useful to upgrading the "quality of life"; the demand for zero defects in product safety, and zero discharge in water pollution.

Values, then, are at the bottom of this understanding. They define ideas which unleash aspirations that eventually become the goals toward which society, as a whole, inevitably strives.

THE FIVE MASLOWIAN LEVELS

Maslow describes the five different stages or phrases through which society evolves in his "needs hierarchy":

Level 1--Survival. Here the dominant driving force is simply the struggle to sustain life, to secure food, drink, sleep, warmth. This state involves scarcity and extreme poverty. Primitive man, social outcasts, and severe defectives fall into this category as do prisoners in POW camps--to these persons survival is all important. Little else counts.

Level 2--Security. Persons living within this socioeconomic environment are motivated by a desire for protection--from beasts, from people, from natural or economic catastrophies. Individuals are afraid of chaos and seek the familiar, security in numbers--the outlook is basically status quo. Minorities, the poor, marginal farmers, and small businessmen fall within this category.

Level 3--Belongingness. People at this level of social activity strive to be a part of something bigger, conform to group norms ("organization men"), depend upon the opinion of others. The mass middle class falls into this category.

Level 4--Esteem. People in this category are goaded by achievement that is "visible," ostentatious; they want to stand out and have others think well of them; materialism, and "keeping up with the Joneses" pervades this social strata. Within this category are business executives, politicians, and nouveaux riches.

Level 5--Growth or Self-Actualization. Living up to one's full potential is the primary concern at this level of development. Individuals within this social strata are tempered by idealism, motivated by ends not means, willing to follow--or to lead. They have an abiding conviction that the world can be better, their outlook is dominated by social awareness, and with a future-oriented and global perspective.

SELF-ACTUALIZERS--THE VANGUARD OF CHANGE

It is this process of inward turning--self-actualization or realization (level 5)--that is central to understanding the quest for quality and the elusive goal of perfection that grips us. All previous levels are motivated by quantitative needs; however, self-actualizers become all-concerned with quality.

In a post-industrial society persons falling into level 5 are increasing. As they increase in numbers their role as opinion leaders and trend setters becomes increasingly important. Although the real power over the socioeconomic system is wielded by those within the esteem group (level 4), the thinking of those in the esteem group is significantly shaped by opinion leaders in the self-actualization category.

Self-actualizers are the advocates of change. We need to carefully listen to them. More often than not, they are the cutting edge of change. Maslow stops at self-actualization. It always bothered me that he never went any further. Other psychologists describe where we go from here. One now obscure commentator may become world famous for his work--Clare Graves (Union College, New York) whose values system goes far beyond Maslow.

MOVING BEYOND MASLOW:
CLARE GRAVES' LEVELS OF EXISTENCE THEORY

Peter J. Jessen

Mr. Jessen is a policy analyst and social systems developer and has recently completed work with the National Commission on Marihuana and Drug Abuse.

Presented to: Ad Hoc Interagency Committee on Futures Research, April 20, 1972.

MOVING BEYOND MASLOW: CLARE GRAVES' LEVELS OF EXISTENCE THEORY

Peter J. Jessen

A definitive explanation of Graves cannot be accomplished in the pages allotted to us. However, an overview of the dynamic can be explained to facilitate the kind of thinking we are doing now in regards to developing alternative futures and the corresponding budgets to go with them.

Graves developed his theory independent of Maslow. Once they began to compare notes, however, a debate ensued. The debate "ended" when Maslow, in writing, shortly before his dealth, agreed with Graves.

Graves' levels of existence theory consists of eight levels, each reflective of a basic value system. These major value systems, along with their existential states, associated motivational systems and end values, and the problems of existence of each level, would chart as shown in Exhibit I. The major "problems" of each existential state is as follows: H-U: accepting existential dichotomies; G-T: restoring viability in a disordered world; F-S: living with the human element; ER: conquering the physical universe so as to overcome want; D-Q: achieving everlasting peace of mind; C-P: living with self-awareness; B-O: achievement of relative safety; A-N: maintaining physiological stability.

Working in this system are two cyclic factors: the adjustment-of-environment-to-organism component, and the adjustment-of-organism-to-environment component. A person's concept of a healthy personality is a function of a person's having experienced solutions encountered in the task of trying to stay alive. The cyclic patterns, says Graves, works in alternating spurt-plateau-spurt-plateau, etc. Levels 1, 3, 5, 7 are seen as a family of self-expressive systems, and are closely related. Equally so are levels 2, 4, 6, 8 which are adjustive systems (adjusting with the world, not changing it). They are belonging systems.

EXHIBIT I

LEVEL	BASIC VALUE SYSTEM	EXISTENTIAL STATE* IN LETTERED NAMES	MOTIVATIONAL SYSTEM	MEANS VALUES**	END VALUE**
8	EXPERIENTIAL	H–U	EXPERIENCE	EXPERIENCING	COMMUNION
7	EXISTENTIAL	G–T	EXISTENCE	ACCEPTING	EXISTENCE
6	SOCIOCRATIC	F–S	AFFILIATION	SOCIOCENTRICITY	COMMUNITY
5	MATERIALISTIC	E–R	INDEPENDENCE	SCIENTISM	MATERIALISM
4	SACRIFICIAL	D–Q	SECURITY	SACRIFICE	SALVATION
3	EXPLOITIVE	C–P	SURVIVAL	EXPLOITATION	POWER
2	TRADITIONALISTIC	B–O	ASSURANCE	TRADITIONALISM	SAFETY
1	REACTIVE	A–N	PHYSIOLOGICAL	NO CONSCIOUS VALUE SYSTEM; VALUES PURELY REACTIVE	

*A–N: A PHYSIOLOGICAL SYSTEM; B–O/H–U: PSYCHOLOGICAL SYSTEMS.

**UNDERLINED VALUES: PRIMARY ORIENTATION OF EACH VALUE SYSTEM

Graves rejects the thesis that man is driven by original sin, that civilized human behavior can only be superimposed on man, that good values and ethics have been "revealed to man" (Judeo-Christian, Buddhist, etc.) and "are the prime tenets by which man should live." Instead, Graves prefers to view the current problems as breakdowns in values, and that the values problem can be viewed from a different view, namely: a humanistic, organismic, systems view, called the Level of Existence point of view. This view would hold the following regarding the nature of man:

"I. That man's nature is not a set thing, that it is ever emergent, that it is an open system, not a closed system.

"II. That man's nature evolves by saccadic (sac, pouch), quantum-like jumps from one steady state system to another.

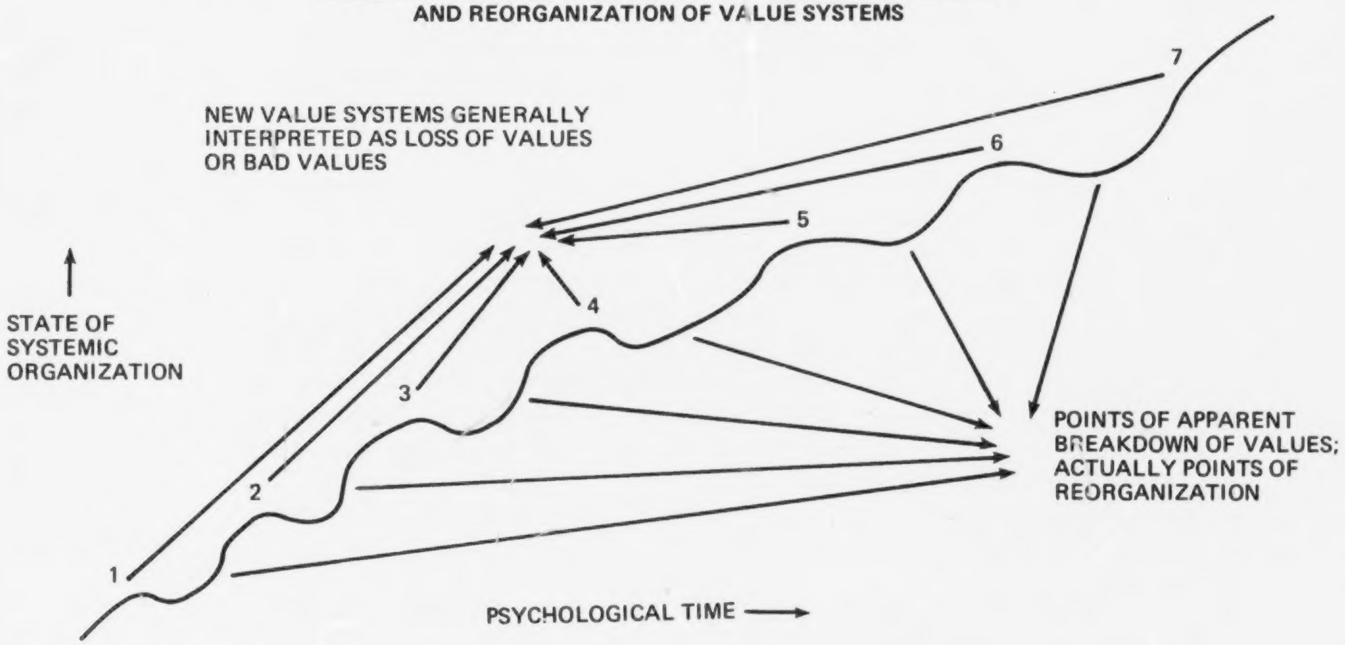
"III. That man's values change from system to system as his total psychology emerges in new form with each quantum-like jump to a new steady state of being."

Thus, Graves would interpret the events of today as signs of pending chaos or of the apocalypse. He views turmoil as evidence of transition taking place, transition from one level to another. Exhibit II illustrates this dynamic. As people and groups develop they do so in a wave-like motion, with high spots and with low spots. In reality, the points reflect the dynamics of the never ending process of development. The transition period provides us with an opportunity for reorganization. Instead of values being lost or bad values being obtained, we have newly emergent value systems, systems appropriate for the next level of existence.

With this all too brief description, let us now compare Maslow with Graves, not from the standpoint of how we would like to personally interpret them but from the standpoint of what they meant by their theories.

EXHIBIT II

FIGURATIVE REPRESENTATION OF THE GROWTH REGRESSION AND REORGANIZATION OF VALUE SYSTEMS


NEW VALUE SYSTEMS GENERALLY INTERPRETED AS LOSS OF VALUES OR BAD VALUES
STATE OF SYSTEMIC ORGANIZATION
1
2
3
4
5
6
7
POINTS OF APPARENT BREAKDOWN OF VALUES; ACTUALLY POINTS OF REORGANIZATION
PSYCHOLOGICAL TIME

One of the major defects of the Maslow scale is that it enables Sisyphus to succeed: he rolls the stone to the top of the hill and then rests on his laurels. Graves, on the other hand, recognizes the human situation in true Sisyphean terms: that growth and development are endless, open, continuous. Maslow, at the top of his hierarchy, is applicable only to individuals, not groups (institutions, nations, etc.). Graves is. Roughly speaking, the first four levels of Graves correspond to the levels suggested in the Maslow scale.

A key difference between Maslow and Graves centers upon desired level attainment. Maslow says all must progress to level four, self-actualization, before becoming whole. Graves says it is silly to try to get everyone to exist at the same level. Instead, says Graves, understand the various levels to enable you to interact with others but concentrate upon those at the same level or only one level, for they are the ones with whom you will best get along.

Maslow's system is not open ended; Graves is. A person, or group, is not considered by Graves to be at one level only. Parts of all exist at the same time. One level usually dominates, however. When a new level of the system is reached, the lower systems are subordinated. When a lower level system becomes dominant over a higher level (due either to a crisis that cannot be handled or to a kind of "backsliding") the higher level operates in service of the system's lower level now dominating. Exhibit III illustrates that the first level contains embryonic aspects of later developing systems and that all later developing systems subordinate older systems in a newer totality. This illustrates the nesting aspect of adult personality systems.

Exhibit IV charts how the Graves' system relates to both personal and organizational values systems and needs hierarchies. The letters A to H would be on the vertical axis and refer to the neurological systems of configurations. The letters N to U would be on the horizontal axis and refer to the existential problems. As the person develops, changes take place within the brain. The greatest change takes place during the transition phase between levels.

EXHIBIT III

FIGURATIVE REPRESENTATION OF THE SUBORDINATION OF SYSTEMS WITH TIME. THE NESTING ASPECT OF ADULT PERSONALITY SYSTEMS.

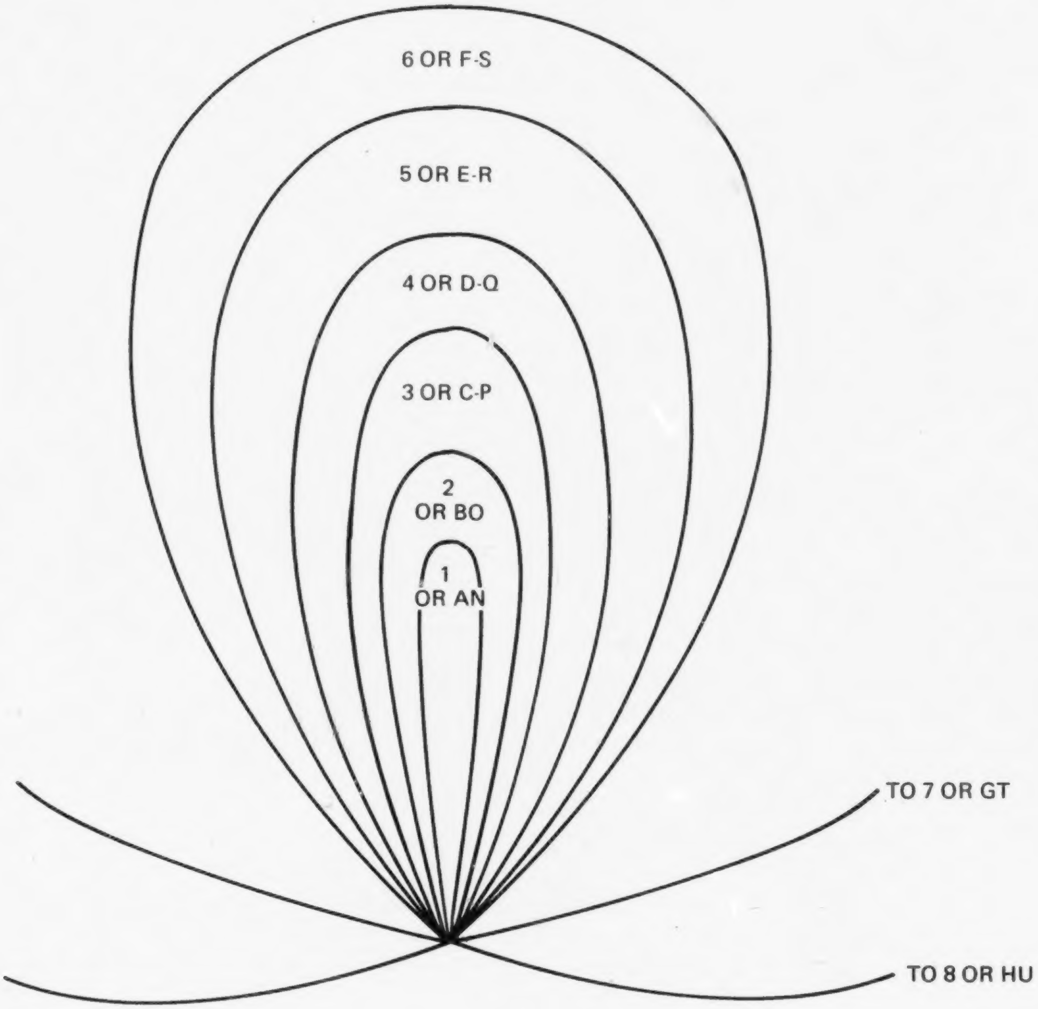
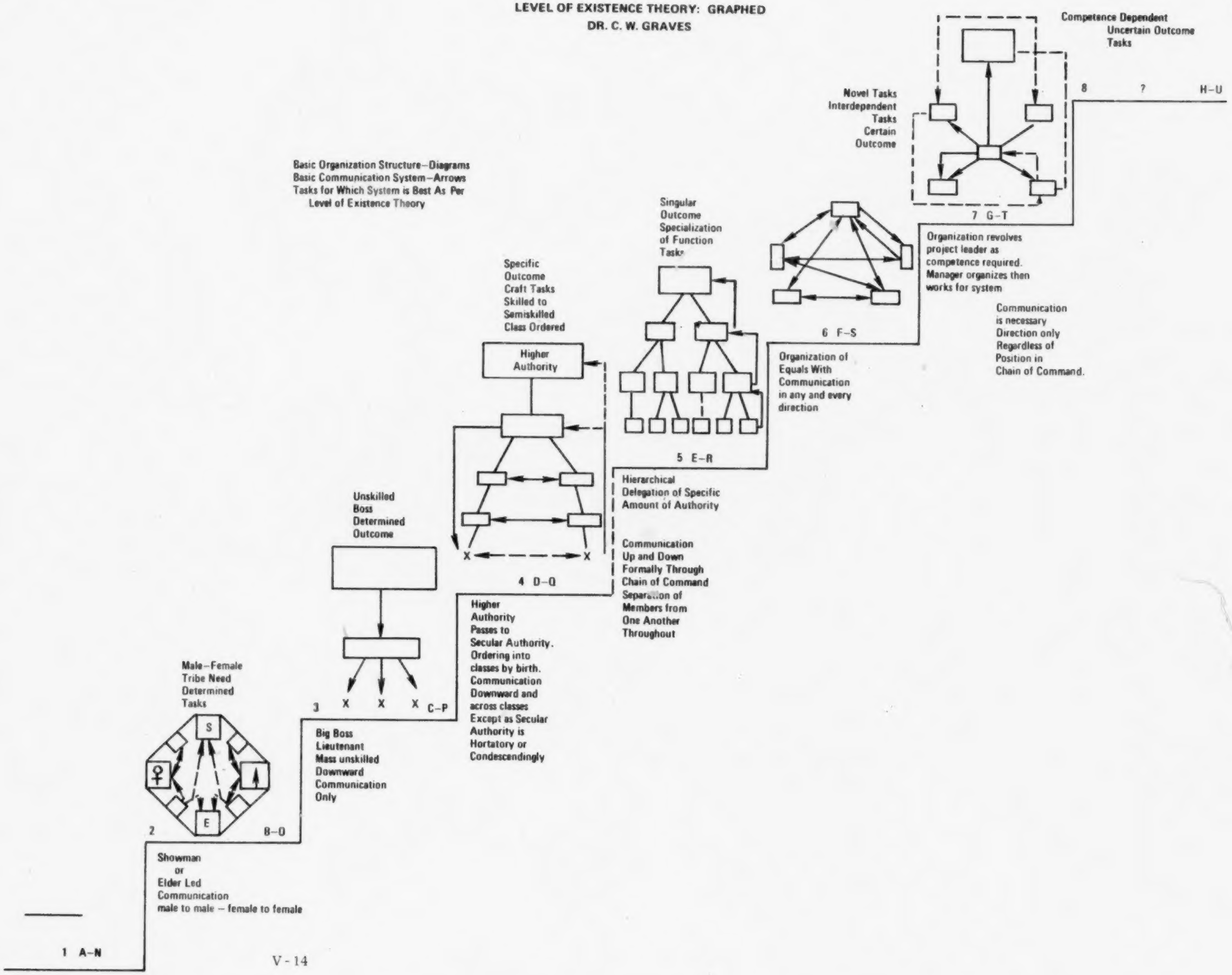

6 OR F-S
5 OR E-R
4 OR D-Q
3 OR C-P
2 OR BO
1 OR AN
TO 7 OR GT
TO 8 OR HU

EXHIBIT IV

LEVEL OF EXISTENCE THEORY: GRAPHED
DR. C. W. GRAVES


Basic Organization Structure—Diagrams
Basic Communication System—Arrows
Tasks for Which System is Best As Per Level of Existence Theory
1 A–N
Showman or Elder Led Communication male to male – female to female
Male–Female Tribe Need Determined Tasks
S
E
♀
2
B–O
Big Boss Lieutenant Mass unskilled Downward Communication Only
Unskilled Boss Determined Outcome
3
X
X
X
C–P
Higher Authority Passes to Secular Authority. Ordering into classes by birth. Communication Downward and across classes Except as Secular Authority is Hortatory or Condescendingly
Specific Outcome Craft Tasks Skilled to Semiskilled Class Ordered
Higher Authority
X
X
4 D–Q
Hierarchical Delegation of Specific Amount of Authority
Communication Up and Down Formally Through Chain of Command Separation of Members from One Another Throughout
Singular Outcome Specialization of Function Tasks
5 E–R
Organization of Equals With Communication in any and every direction
6 F–S
Novel Tasks Interdependent Tasks Certain Outcome
7 G–T
Organization revolves project leader as competence required. Manager organizes then works for system
Communication is necessary Direction only Regardless of Position in Chain of Command.
Competence Dependent Uncertain Outcome Tasks
8
?
H–U

Graves' concept of level transitions is one of the most important contributions of the theory. Transitions relate to personal change, historical change, cultural change, institutional change. When a person, a group, an institution, a state, a nation, etc., come to the end of a particular way of life (in Graves' terms: to the end of a level means to the end of DQ, ER, FS, etc.), that "way" or "level" no longer suffices to help the questions/problems of existence. This creates a state of crisis. The crisis state should be viewed as a healthy sign, says Graves, not as a signal for doomsday, tales of Armageddon, or of the apocalypse. For Graves these are positive signs of the transition to a higher level. The chaos or crisis results from the struggle to make it to that next level. Put another way, the struggle represents the process the person or group goes through in adjusting from feeling no longer satisfied with the old level but not yet happy or comfortable with the new level.

For this reason, the first step taken is usually regressive. A striving to find a way forward follows the regressive step. This effort creates stress. For example, people abusing drugs are often in the transition between levels 5 and 6 (ER to FS). According to Graves, this manifestation used to represent the difficulties of the transition between levels 4 and 5 (DQ to ER). As our civilization as a whole goes through various levels, the ramifications of change also change. No one approach suffices in dealing with the various transitions. This is particularly true of therapy selection for individuals (although it holds true for approaches to and with organizations and institutions). Examples of the various levels and the approaches that seem best are as follows:

FOR THE CP TO DQ (3–4) TRANSITION :	SKINNERIAN PRINCIPLES APPLY: BENEVELANT AUTOCRATS;
FOR THE DQ TO ER (4–5) TRANSITION :	THE FREUDIAN ONE-TO-ONE APPROACH WORKS BEST; THE CRUCIAL EFFORT IS TO OVERCOME FEAR, TO BUILD TRUST;
FOR THE ER TO FS (5–6) TRANSITION :	ONLY PEER GROUP TECHNIQUES WORK (THUS, T GROUPS OR SENSITIVITY GROUPS SHOULD BE USED;
FOR THE FS TO GT (6–7) TRANSITION :	A ROGERIAN APPROACH IS BEST; ONCE THE GOAL OR NEED OR ISSUE IS EXPRESSED, THE FS TO GT PERSON OR GROUP CAN WORK IT OUT FOR THEMSELVES.

Thus, to use the latter technique for the DP to DQ person would create chaos for them. To use Skinner for the FS to GT person would only result in their turning on their irritated heels and walking out.

It should become readily clear that Graves' levels of existence theory provides us with a fine tool for relating happenings, developments, and scenarios to the influences propelling us toward the year 2000. We can apply Graves to understand the different "revolutions" that are abroad in the land. This is very crucial when we address ourselves to policy analysis and policy planning. No person or group can be adequately dealt with unless their levels of existence are determined and understood. Examples of the five basic revolutions which we can pinpoint via the use of the Graves' theory, are the following:

BO TO CP (2 TO 3) : EXTREME MILITANCY, BRUTAL AGGRESSION;
CP TO DQ (3 TO 4) : BLACK MUSLIMS; PURITANISM (NOTE ATTICA ACTIONS);
DQ TO ER (4 TO 5) : THROWING OFF MIDDLE-CLASS VALUES (SUCH AS PUNCTUALITY, HARD WORK, CLEANLINESS); JESUS FREAKS ARE AN EXAMPLE;
ER TO FS (5 TO 6) : THROWING OFF THE AFFLUENT WAY OF LIFE, CASTING ASIDE MATERIALISM, ESCAPING TO LOVE (THE HUMAN PSYCHOLOGICAL ASSOCIATION TYPES);
FS TO GT (6 TO 7) : GETTING RID OF MAJORITY RULE, FOR THE MAJORITY IS ALWAYS WRONG; NO EQUALITY EXISTS -- THIS IS MORE DIFFICULT TO UNDERSTAND AS A CONCEPT: THEREFORE, LET ME QUOTE GRAVES "THE BRIDGE FROM THE . . . FS LEVEL TO THE . . . GT LEVEL IS THE BRIDGE BETWEEN GETTING AND GIVING, TAKING AND CONTRIBUTING, DESTROYING AND CONSTRUCTING. IT IS THE BRIDGE BETWEEN DEFICIENCY OR DEFICIT MOTIVATION AND GROWTH OR ABUNDANCY MOTIVATION. IT IS THE BRIDGE BETWEEN SIMILARITY TO ANIMALS AND DISSIMILARITY TO ANIMALS."

Graves would not place value judgments on the above transitions. What the various level people or organizations are rebelling against is not the issue. The issue is what they do with them. Once the transition is made, they may very well take back the ideas or objects that were thrown out.

This is not to suggest, however, that everyone is in a state of progression through the various levels. Closed system people are stationery at their level. Only open systems people and organizations can work through the various levels and transitions. The closed system could be due to a number of causes: mental illness, retardation, mechanical injury to the brain, senility, retreat from emotional/psychological trauma, etc. This would restrict movement to the upper levels and could reduce a person or group to a lower level.

From an analysis standpoint, one would thus want to ascertain the level of people and groups with whom and which one deals (groups are often dealt with in the guise of personal representatives). If it is determined that they are closed, all issues will be approached the same way within the closed level system. Indications as to level can be obtained by probing for opinions regarding certain vital issues of human behavior. For example, to elicit opinions regarding rules, reactions when criticized, parents, how to handle those they disagree with, will reveal their level and their degree of openness.

Applying this directly to the United States, we should base our discussions on the fact that the U. S. today is, in Graves' terms, quagmired in the transition between DQ to ER (4-5). From his work, Graves notes that the DQ way of life is on its way out in our society. In 1952 he found 34% of his students at the DQ level, about 10% at the GT level. Today, the figures are nearly reversed. Realizing this helps to put into perspective the transition phenomena listed above. Not that the other transitions are not taking place also. It's just that the majority are in the DQ to ER transition.

A footnote relating this to exogenous factors would state that much of the concern over certain foreign policy decisions or advocated plans is misplaced. For instance, if we accept the proposition that people and societies develop through a series of transitions, then the reaction to certain notions regarding other nation development must be reassessed. The road to democracy for a tribal/feudal/agricultural/etc., type society is through autocracy. Thus, for Vietnam, if democracy is to be attained, it must first go through autocracy.

Policies relating to welfare, youth, and certain minority groups would also be viewed from a different perspective. And, within each of these, the importance of the various cohorts (generations born at the same time) must be stressed. Thus, those born before World War II began life at a lower level due to the hardships and deprivations of that time. Those born after 1945 began life at a much higher level of existence than their parents because they did not have to go through the same kind of either depression or war-time survivalism. Because it is difficult for a person of a given level to relate to persons over one level away, we can begin to understand some of the difficulties in youth and parent relations, WASP and minority relations, various ethnic and religious relationships, etc.

The key question becomes: can we avoid, when possible, and be aware of, when not possible, our own ethnocentrism, emotionalism, and semantic confusion and propaganda when analyzing our own and others' levels of existence? The next question would be: how? The beginning of that answer is the learning, understanding, and application of the Graves' levels of existence theory.

QUALITY OF LIFE

Norman C. Dalkey*

Norman C. Dalkey is with the RAND Corporation
at Santa Monica, California.

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QUALITY OF LIFE

N. C. Dalkey

INTRODUCTION

The phrase "quality of life" has almost supplanted the older words "happiness" and "welfare" in contemporary discussions of policy in the urban and domestic areas.* The phrase does have a fine ring to it and is somewhat less maudlin than "happiness" and somewhat less shopworn than "welfare." However, there is some question whether the brave new phrase is any less vague.

The expression is most often encountered as a slogan--a call to think bigger. There is nothing particularly objectionable in the sloganistic use; except that the term is rarely defined and one suspects that it contributes its bit of soot to the verbal smog--most of the users are careful not to pause for definition, but hurry on to more operational problems, like setting performance goals.

This is not the place to examine goal-oriented decision making. And, I am going to make a further simplification, which is to accept the restriction of social programs as aimed at doing something for the individual. Whether that is a reasonable attitude is, I believe, a wide open question, but I won't open it here. (What is involved is the question whether there are group interests which transcend the interests of the individual members of the group. It is my impression that there are--beside the standard ones of national security--but discussion of this issue would lead too far afield.)

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*"These goals cannot be measured by the size of our bank balances. They can only be measured in the quality of the lives that our people lead." (Remarks of the President (Johnson), Madison Square Garden, October 31, 1964.) "But no one has compared the two modes of transport (SST, public urban transit) in terms which might reflect how they improve the quality of life." (System Science, Congress and the Quality of Life, feature article by Murray E. Kanross, IDA for WORC Newsletter, Sept. 1967.)

There is a final simplification I would like to make before proceeding. The notion of "quality" has two elements: it can refer to state or condition, or it can refer to excellence. The difference is probably subtle, and mainly semantic; but life becomes a little simpler if we start off with a descriptive, rather than a prescriptive notion. This boils down to considering the aim to be the characterization of the factors which are relevant and important to the well-being of individuals, and not to prescribing what is socially good. (In my own framework, these two are not really distinct; but other frameworks exist, and I don't want to get tangled up in them at this stage.)

As you will observe I tend to be rather bullish about the feasibility of getting somewhere in the attempt to make the notion of QOL* useful to planners (as more than a handy slogan). My reasons are pretty diffuse. There is a small but growing body of information in psychology that is relevant; there have been several studies by social scientists that are applicable; and there is a fair amount of agreement between armchair thinkers on the factors which are significant. This is not a sufficient basis for optimism--but it is a little better than an excuse.

I remarked earlier that few users of the phrase QOL bother to define it; however, some have attempted to give content to the notion, and it is worth examining these characterizations.

These attempts have taken two** forms, (a) armchair "analyses," and (b) public surveys.

The armchair approach generally consists of devising a list of general factors which are important to the quality of life of an individual. Representative samples are to be found in Bauer (2), Berelson (1), Lynd (3), SRI (4). A kind of super-armchair procedure is that of the prestigious commission, most notably the President's Commission on National Goals and Values (5). Again, the output is a list of items deemed (in this case) most important for the well-being of nation, and hence, derivately, for the individual. The report of the President's Commission has become a sort of bible in the national area (6) (7). One investigator, Wilson (8), has used the list of goals as a structure to rank the 50 states in the order of the quality of life they offer their residents.

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*This abbreviation of Qualify of Life will be used intermittantly below.

**I am excluding the host of ethical, aesthetic, and religious essays in this area, as well as the mass of clinical material in the psychoanalytic and mental hygiene areas; the first three because of lack of empirical claims, and the last two because of extreme miscellaneity.

The public survey approach is well represented by two investigations, reported in (9) and (10). These are analyses of the results of extensive interviews with cross-sectional samples of the American public. Despite the somewhat Reader's Digest air lent these studies by their unabashed use of words like "happiness," "feelings," etc., they have the virtue that they at least ask the relevant questions, rather than imposing a priori assumptions.

Following a brief discussion of the armchair and public survey efforts, a research strategy is suggested that appears to go well beyond these two with respect to coherence and comprehensiveness.

ARMCHAIR EFFORTS

As noted above, the armchair approach consists in devising a list of general factors which are presumed to be significant in determining the well-being of humans. The lists referred to are, of course, not capricious. They are distilled from clinical lore, sociological think pieces, some psychological and social psychological experimentation, and the like. There is a great deal of overlap among the lists--in general the shorter lists tend to be contained bodily in the longer ones. The shortest list I have run across is that of SRI, which involves three basic factors:

Safety
Belongingness
Self-esteem

A fourth item is appended, self-realization, but this is treated on a different level than the basic three.

The oldest list of this genre I have run across is dated 1923 (Thomas, quoted in Berelson, p. 257) and is next to the shortest. Thomas adds "new experience." I cooked up a list semi-independently of the ones mentioned, and I suppose it is only fair that I use it as an example. The list contains nine items: Health, Activity, Freedom, Security, Novelty, Status, Sociality, Affluence, Aggression.

Strictly physiological items such as food, sleep, shelter, etc., have been omitted primarily on the grounds that, in the U. S., at least, these are pretty well taken care of at better than subsistence levels.

A number of dubieties arise at once concerning any attempt to set down a list of the significant factors in the quality of life. The lists are intended to be comprehensive, but the varying lengths of those in the literature indicate that there is no trustworthy stop rule for the multiplication of items. Again, the items are presumably distinct, but there is no good way of telling whether they overlap, or in fact refer to the same thing. Finally, the items are extremely difficult to relate on the one hand, to human behavior, and, on the other, to policy.

In an attempt to introduce a somewhat more systematic treatment (but still within the armchair tradition) I conducted a preliminary Delphi (14) exercise, using twelve RAND staff as a panel. They were asked to judge three things concerning the nine factors listed above: whether the items were a) meaningful, b) measurable, and the relative weight of the factors for the quality of life of the average American.* They were also asked to add any new factors which they thought were significant.

There was good agreement that the items were meaningful, and good agreement that all were measurable except for Freedom, Novelty, and Agression. There was considerable diversity on the values of the relative weights, but reasonable agreement on the ranking. In terms of proportionate parts of 100, the median relative weights were those in Table 1.

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*The questionnaire used for this exercise is included as an appendix.

TABLE I

Median Relative Weights of 12 Respondents for Nine Factors in Quality of Life

	Factor	Median Weight
1.	Health	20
2.	Status	14
3.	Affluence	14
4.	Activity	12.25
5.	Sociality	9.8
6.	Freedom	8.2
7.	Security	8.2
8.	Novelty	7.2
9.	Aggression	6.1

As can be seen, the items break up into three main groups, (1) Health, (2) Status, Affluence, Activity, (3) Freedom, Security, Novelty, with Sociality midway between (2) and (3) and Agression rather by itself at the bottom.

How much this table reflects the RAND environment, I don't know. I had intended to pursue the exercise for at least another round, feeding back the results of the first round to the panel for further consideration; but I gave up for two reasons: 1) no procedure suggested itself for dealing with the overlap problem. The clustering of 2, 3, 4, and 5, 6, 7 indicated they might be describing one single factor each. 2) No procedure suggested itself for dealing with the completeness problem.

The only two items suggested for addition by more than one member of the panel were sexual activity, and care of children (including education).

GENERAL CONSIDERATIONS

Without a good deal more empirical study than now exists, the armchair lists are probably only suggestive. However, they are in agreement on one general proposition: Whatever QOL is, it is determined mainly by some very general features of the individual and his environment, and not by specifics. What this means is that two different individuals who score about the same in a "factor space" should, for example, report about the same degree of contentment with their lot, irrespective of the special circumstances that make up the score. This is a very strong statement. Providing the factors are measurable, it is testable, and one of the problems to be tackled is how we can go about testing it.

A great deal of the issue is whether we are looking for a "single thing" that can be called QOL, or whether we presume it is a congeries of incomparable elements. There are several levels possible here: If we consider the factors to be--as Lynd (3) does--motivations, or forces, we can ask whether there are trade offs among them. If so, there is a reasonable sense in which "equimotivating" curves can be drawn and a general "desirability" index defined. A somewhat different notion is involved in use of terms such as "happiness" to describe an overall "feeling-tone" to which the various status variables "contribute." A third point of view is that of the mental hygienist which apparently would include some notion of the effectiveness of the individual, as well as his "feeling-tone."

In the present discussion I vacillate between the three. My prejudices lead me to favor the mental health approach, but the difficulties of implementing this approach for purposes of systems analysis in domestic problems nudge me toward the simpler structures.

In addition to the very general postulate that QOL is determined by some highly abstract properties of the living space of the individual, there are two other propositions for which there seems to be a fair amount of evidence: The first is that the influence of factors on QOL are a rapidly decreasing function of distance away, either in space or time. The statement with respect to time is very similar to the notion of discount rate in economics. The opportunity of obtaining a dollar one year from now is much less motivating than the opportunity to obtain a dollar this afternoon. With regard to space, there has been a fairly rich experimental program with animals, and especially with rats, demonstrating the properties of what the psychologist Clark L. Hull called the goal gradient. If any of several indicators of motivation are employed (velocity with which the rat runs toward a goal, the physical tug the rat exerts against a restraint, which can be measured by a harness and a spring balance, etc., the general relationship of this measure and distance from the goal is that of an exponential decrease (see Figure 1).

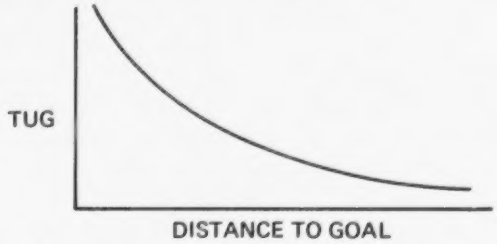

Figure 1.

One of the most beautiful sets of experiments in all psychology demonstrates the interaction of positive and negative goal gradients (11). In a given maze, the positive goal gradient, e.g., for food, can be measured. Suppose for the same maze, a negative goal gradient is measured, e.g., for an electric shock. The curve will again look like Figure 1, except, of course, the effect is a push away from the "goal" rather than a tug. Now, suppose the rat is faced with the situation where there is food and an electric shock at the goal position. It appears to be the case that the decline of the negative "force" is more rapid than the decline of the positive force, hence the two curves will cross, as in Figure 2. The remarkable thing is that although the two curves were measured independently, when the goal is mixed, the rat will approach the goal until he reaches the crossover point, and then stop. If he is placed closer to the goal than the crossover point, he will retreat to the crossover and again stop. If he is placed precisely at the crossover, he will remain there. In short, the reality of the equality of the push and the tug is elegantly borne out.

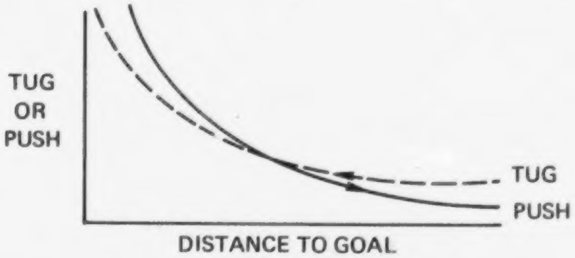

Figure 2.

Probably, even for rats, but certainly for humans, the goal gradient would need modification in terms of psychological distance, as well as physical distance; although it is striking that sheer physical distance appears to be sufficient for many psychological and sociological phenomena. In particular, Zipf (12) has found some surprising relationships between distance and social interactions.

The other general proposition is that human beings probably live much more "in the future" than lower animals. Hope, anticipation, ambition, aspiration level, anxiety, etc. are clearly important elements of QOL. But it seems reasonable to assume that events of the distant future are much less influential than near events. It also seems reasonable that the "discount rate" depends the kind of event and the amount of uncertainty surrounding it, I don't know of any experiments in which the time-wise goal gradient for animals has been systematically investigated, but it looks like a tractable subject.

SURVEYS

A somewhat more empirical approach is furnished by the cross-sectional survey. The two studies "Americans View Their Mental Health" (1960) (9) and "Reports on Happiness" (1966) (10) are among the more complete and recent such surveys. The procedure is reasonable, if a little uninspired. Lengthy interviews (of the order of two hours involving over a hundred questions) were held with cross-sectional samples of the population. Questions ranged from the subjective and global (Taking all things together, how would you say things are these days--would you say you're very happy, pretty happy, or not too happy these days?) to the objective and specific (About what do you think your total income will be this year for yourself and your immediate family?... list of income brackets.)

Such surveys are subject to a host of well-known objections. These were recognized by the investigators, but, of course, are hard to deal with. It is difficult to check the reliability of verbal reports; they are hard to relate to behavior; subjective evaluations are subject to bias and cultural distortion, etc. In addition, the survey approach has very little in the way of conceptual framework to suggest hypotheses and structure.

Nevertheless the survey results are not empty. For one thing, they overturned several well-entrenched bits of popular sociology. A good example is the myth of the carefree bachelor. Standard lore has it that the single man enjoys his freedom, while the single woman is anxiously awaiting the loss of hers. Something like the opposite appears to be the case. The unmarried male is much more likely to rate himself as "not very happy" than the unmarried female.

An interesting result from the "Reports on Happiness" study is that a succession of events, some with positive and some with negative feeling tones do not smear into an intermediate shade of emotional grey, but make distinct contributions to a self-evaluation. Persons reporting being very or pretty happy are likely to report a greater number of both unpleasant and pleasant events in the recent past than those reporting being not very happy.

For those interested in urban affairs, the surveys raise somewhat of a puzzle. In comparing self-evaluations of urban and rural dwellers, no measurable difference could be found when respondents were matched for other obvious variables--age, sex, education, income, married or not. Admittedly, the measuring stick is crude, but at least the other variable mentioned did make a distinct difference.

A RESEARCH PROPOSAL

In this section a research proposal will be outlined that represents an attempt to be somewhat more systematic in studying the quality of life than either the armchair or survey approaches. The pros and cons will be left to a later section.

The basic idea is quite straightforward, namely, to prepare a comprehensive set of scales relevant to the quality of life; let a large, representative sample of Americans rate themselves on these scales via confidential interview; and employ factor analysis to summarize the interrelations between the ratings. With any luck at all, many of the factors derived in the analysis would be interpretable and could replace the armchair lists with something more solid. However, this felicitous result is not vital to the usefulness of the study.

The scales would consist of three sorts: a) relatively objective measures such as income, age, amount of communication with friends, etc., b) subjective ratings such as job satisfaction, perceived social status, degree of excitement in daily activities, etc., c) global subjective scales like happiness, amount of worry, number of times thought of suicide, optimistic about future, etc.

Since one expectation would be that the results of such a study would be relevant to policy in the urban and domestic areas, several blocks of scales should be allocated to issues directly involved in these, e. g., amount of time spent in parks and places of public recreation, satisfaction with neighborhood, amount of income from welfare payments, and so on. In light of the large role that aesthetic and "cultural" considerations play in the deliberations of many urban planners it would seem reasonable to include a number of scales relevant to this dimension.

Obviously, one of the great difficulties with the study would be to include the "dark" areas--aggression, antisocial behavior, bigotry, and the like. The presumption that the quality of life is determined solely by "acceptable" items is, of course, false; but probably on a first go round, the dark items would have to be underemphasized. On the other hand, there is no reason to leave them out--the President's Commission on Crime (13) had no difficulty in pursuing the question whether respondents had committed one or more serious crimes. 90% had.

The most critical part of the study, and the one that would probably consume a majority of the elapsed time is the construction and selection of the set of primary scales. There is an essentially limitless potential set of such indices. A large proportion of the items could probably be derived from the extensive literature on sociometrics. The armchair lists can be used for some guidance. However, an intensive preexamination by a panel of social psychologists would undoubtedly be required. In addition, several pilot runs to test the reliability and where feasible, the "validity" of the items would be needed.

An extremely useful substudy would be to combine the quality of life questionnaire with a personality inventory and an intelligence test. The problem here would be to find a meaningful small group of respondents--it obviously would be of limited value to use only college graduate students.

The less difficult part would be conducting the survey and initial analysis of the data. The interviewing would doubtless be done most efficiently by one of the established survey groups, and computer routines exist to carry out the very large amount of computation required for the factor analysis. Summative analysis and drawing conclusions would certainly not be routine.

PROS AND CONS

There are a number of negative considerations with regard to the research proposal sketched above. All of the difficulties with using "verbal behavior" previously noted in connection with public surveys still apply. It is likely that some increase in reliability will accrue from the statistical aggregation in the factor analysis, but this is not a large effect compared with the questionable aspects of relying on verbal reports. In addition, it is easy to oversell the significance of factor analysis. The technique itself has some formal drawbacks--principally that it is not independent of irrelevant indices--and the question whether the derived factors are "real" or simply statistical artifacts is generally an open one. In the case of the quality of life analysis there is a form of internal criterion of meaningfulness, in that it is possible to include a number of "global" scales, and the degree to which the derived factors can be used to estimate the global indices can be assessed. However, this internal criterion is of limited weight with respect to the question whether the derived factors are related to behavior or to the effects of varying the environment of an individual. There is, in fact, a nondismissable question whether all the analysis is doing for you is shortening your dictionary.

Not to be overlooked is the fact that a study of this scope would be expensive.

Despite these reservations, there are several reasons for urging that the study be undertaken. Above all, the factor analytic approach--whatever the ultimate significance of the derived factor structure--furnishes a systematic framework for tying together a vast amount of information about the perceived well-being of present day Americans. It should be a fertile source of hypotheses concerning the interrelation of various influences on the quality of life. It clearly is several steps beyond the armchair approach in both empirical content and in rationale for assessing the importance of various factors. (In this respect, "shortening the dictionary" has by itself a nontrivial payoff.)

The discipline imposed by the analysis on the basic scales should result in a much sharper set of measures. And, of course, one would expect to cut through at least parts of the great mass of common misunderstandings concerning the interrelations of these measures. There is a reasonable expectation that for many of the derived factors, there would be a high enough correlation with objective measures so that relating public programs to the quality of life could be accomplished via these indices.

THE DELPHI PROCEDURE AND RATING QUALITY OF LIFE FACTORS*

Norman C. Dalkey and Daniel L. Rourke

Mr. Dalkey and Mr. Rourke are with the Rand Corporation.

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*This article is an extraction from the larger report, "Experimental Assessment of Delphi: Procedures With Group Value Judgments" by Norman C. Dalkey and Daniel L. Rourke: Rand, 1971, pp 8-24.

THE DELPHI PROCEDURE AND RATING QUALITY OF LIFE FACTORS

Norman C. Dalkey and Daniel L. Rourke

This document describes the method used in an experiment assessing the appropriateness of Delphi procedures for group value judgments.

In this study one group of subjects used the Delphi procedure to rate the relative importance of each of a set of factors in terms of the factor's contribution to a person's assessment of the "Quality of Life." (In our instructions to the subjects we defined the term "Quality of Life" (QOL) to mean a person's sense of well-being, his satisfaction or dissatisfaction with life, or his happiness or unhappiness.) A second group used the Delphi method to scale a set of changes in characteristics of students occurring as a result of their participation in the process of higher education. This scale measured the Effects of Education (EE) in terms of the importance of the changes for the student. These topics were selected because our subject population (UCLA upper-division and graduate students) could be expected to have informed opinions concerning each of them. The two groups received nearly the same instructions for the different topics and were for the most part treated identically.

The experiment required three sessions, the first two of which were devoted to the generation of the items to be scaled by the Delphi method in the third session. In the first session, each subject made up a list of from 5 to 10 items important either for the assessment of the Quality of Life or for the evaluation of the Effects of Education on students.

The items from the QOL group (about 250 in all) were sorted into 48 categories of similar items, while the 300 items from the EE group were sorted into 45 categories. In the second session of the experiment the subjects who had made up the lists of items in response to the QOL questionnaire rated the similarity of all possible pairs of categories formed from the original QOL items. The EE group rated the similarity of all pairs of the EE categories. The similarity ratings were used to cluster the categories of the original items into super-categories. Thirteen super-categories or factors were formed from the QOL categories and fifteen from the EE categories. The relative importance of each factor was assessed during the third session of the study. The QOL group rated the importance of the QOL factors and the EE group rated the EE factors. A two-round Delphi procedure was employed where both groups revised their importance ratings during the second round in view of the median ratings for each factor obtained from the group's first-round ratings. As a check on the reliability of the ratings, the QOL and EE groups were each split into two subgroups and each subgroup used a different procedure to scale the factors.

SUBJECTS

The subjects were 90 UCLA upper-division and graduate students. They were recruited by advertisements in the school paper and were paid for their participation. No attempt was made to select subjects according to sex or field of interest.

ITEM GENERATION

During the first session, which was conducted at UCLA, subjects were instructed to list from 5 to 10 items pertaining either to the "Quality of Life" or the "Effects of Education." The subjects were randomly assigned to a particular topic so that 45 subjects responded to each.

Subjects in the two groups were treated identically. The subjects were given printed instructions and a deck of 10 blank cards. The instructions briefly introduced the subject to the purpose of the experiment and then requested him to list from 5 to 10 items (one item per card) pertaining either to the QOL or the EE topic.

In the QOL condition, subjects were asked to list the characteristics or attributes of those events having the strongest influence on determining the QOL of an adult American. The subjects were instructed to ignore events concerned with basic biological maintenance, but not to overlook characteristics with negative connotations, e.g., aggression. Subjects in the EE condition were asked to view higher education as a process which causes (or fails to cause) changes in characteristics of students. The subjects were requested to list those characteristics which should be considered in evaluating the process of higher education. Subjects were instructed to consider only undergraduate education while forming their lists.

Subjects were also instructed to rank their items from most important to least important. These ranks were used only as rough guides in the initial aggregation of items by the experimental team. Questions concerning the experiment were answered either by repeating or paraphrasing the instructions. No subject required more than half an hour to complete the first session. They were then given appointments for the second and third sessions which were conducted at The Rand Corporation in Santa Monica at intervals of one week.

Prior to the second session of the experiment, the items generated by the subjects in the first session were sorted into categories of similar items. Two sets of categories were formed: one for the QOL items and another for the FE items. The sorting was done by a panel of three; each member assisted in the design and execution of the experiment. Two criteria were used during the sorting of the items: (1) The perceived differences of any pair of items within a category were to be smaller than differences between any pair of items drawn from two different categories; and (2) No more than 50 categories were to be formed. Composite labels were developed for each category either by quoting or paraphrasing (or both) a few of the most frequently occurring items in each of the categories. The 48 QOL category composite labels are given in Table 1 and the 45 EE composite labels are shown in Table 2.

During the second session, each subject was presented with a list of all possible pairs of either the QOL or EE category labels. The task for all subjects was to rate the similarity of the labels in each pair. Every subject was given printed instructions, a list of the category labels, and a computer-generated list of pairs of labels. Each subject received a different random ordering of label pairs. The instructions informed the subjects that the items they had developed during the first session had been categorized to form the list of category labels. This list had in turn been used to form the computer printed list of label pairs. The subjects were instructed to rate the similarity of the labels in each pair on a 0-4 scale where the numerical ratings were tied to the following adjective scale:

4	Practically the same
3	Closely related
2	Moderately related
1	Slightly related
0	Unrelated

If a subject felt that the labels were connected, but in an inverse fashion, he was to use negative ratings, e.g., -4 being equivalent to "practically opposites." The following two examples were given: Drowsy - Physically Tired, illustratively scored at 2, and Drowsy - Alert, scored at -3. Both groups received the same instructions. The QOL group rated 1128 item pairs and the EE group rated 990. The experiment was conducted in two 1-1/4-hour periods with a 1/2-hour break between periods.

The means of the absolute values of the similarity ratings for each label pair were computed over subjects for both groups. These mean absolute ratings were then analyzed by Johnson's hierarchical clustering procedure [8]. In this procedure objects are clustered according to the similarities between them. The objects within a cluster are more similar to one another than to objects belonging to a different cluster. In addition, the procedure merges similar clusters into larger clusters in a stepwise fashion until all the objects are placed into a single cluster. Consequently, the user of this procedure must select the number of clusters which seems compatible with both the data and any theoretical or empirical predictions about the results of the procedure. The problem is not unlike selecting the number of factors to retain in a factor analysis. The use of the absolute values of the ratings "folds" the label pairs given the negative ratings into the same clusters. The clusters which were generated by this procedure are shown in Fig. 1 for the QOL groups and Fig. 2 for the EE group. Numbers across the top refer to the list of items in Tables 1 and 2 respectively. The lefthand column indicates the similarity level at which the item is included in a cluster. The "histogram" of x's displays the progressive aggregation of items into clusters. For example, in Fig. 1 at the highest level of similarity (3.78) Failure (21) and Success (35) are associated--probably as straightforward opposites. At almost the same level, Achievement (37) is joined to the cluster. Nothing further is added to this cluster until level 1.9 when the previously associated pair, Money (7) and Status (12) are added. This is the "core" of characteristic 11 in Table 3. The thirteen QOL and fifteen EE clusters which were selected are given in Tables 3 and 4.

IMPORTANCE RATING

The task for the subjects in the third session of the experiment was to rate the clusters or factors in terms of their importance to the topic in question. The subjects who had developed the

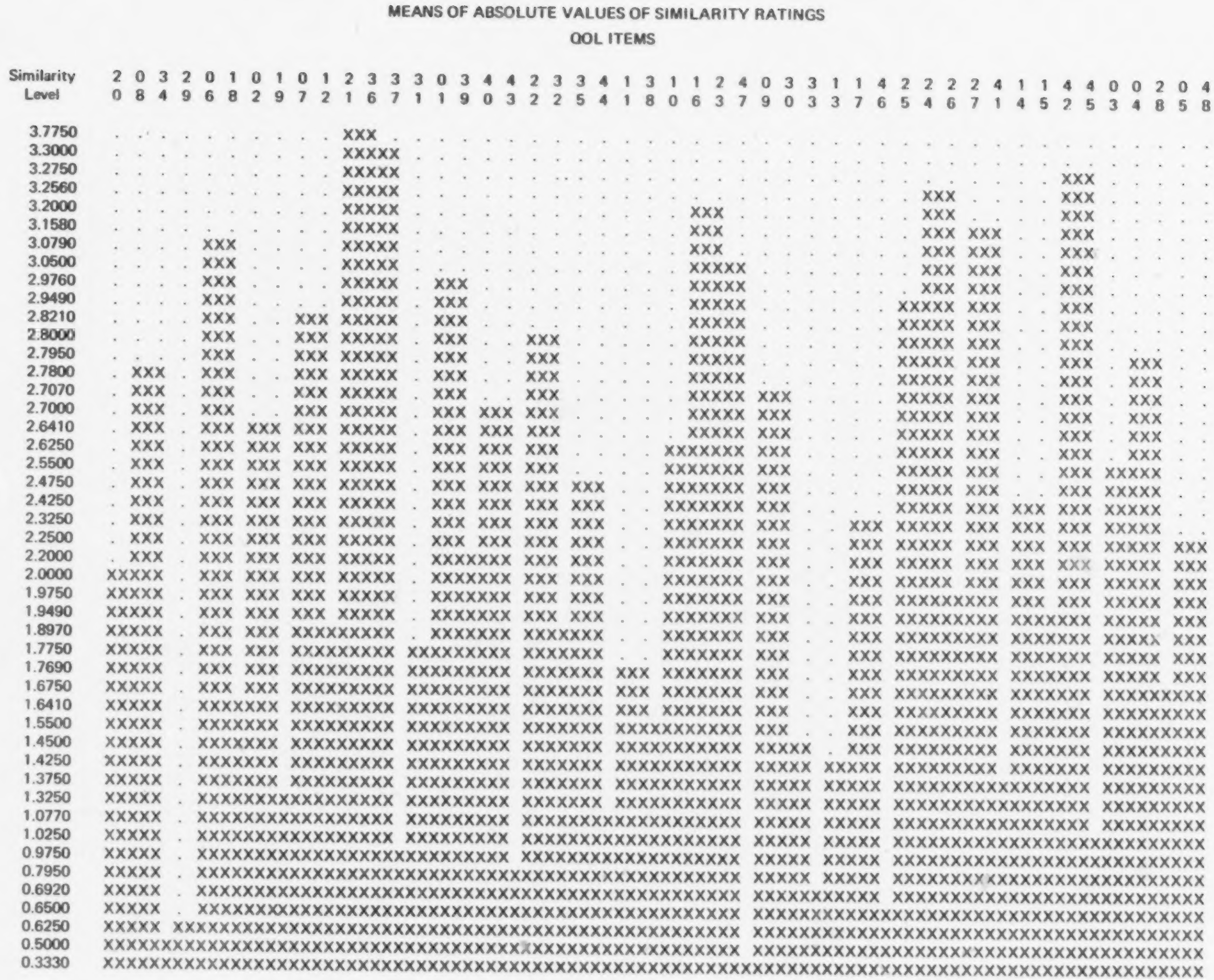

Figure 1—Computer-generated display of factors from analysis of QOL similarity ratings

MEANS OF ABSOLUTE VALUES OF SIMILARITY RATINGS

EE ITEMS

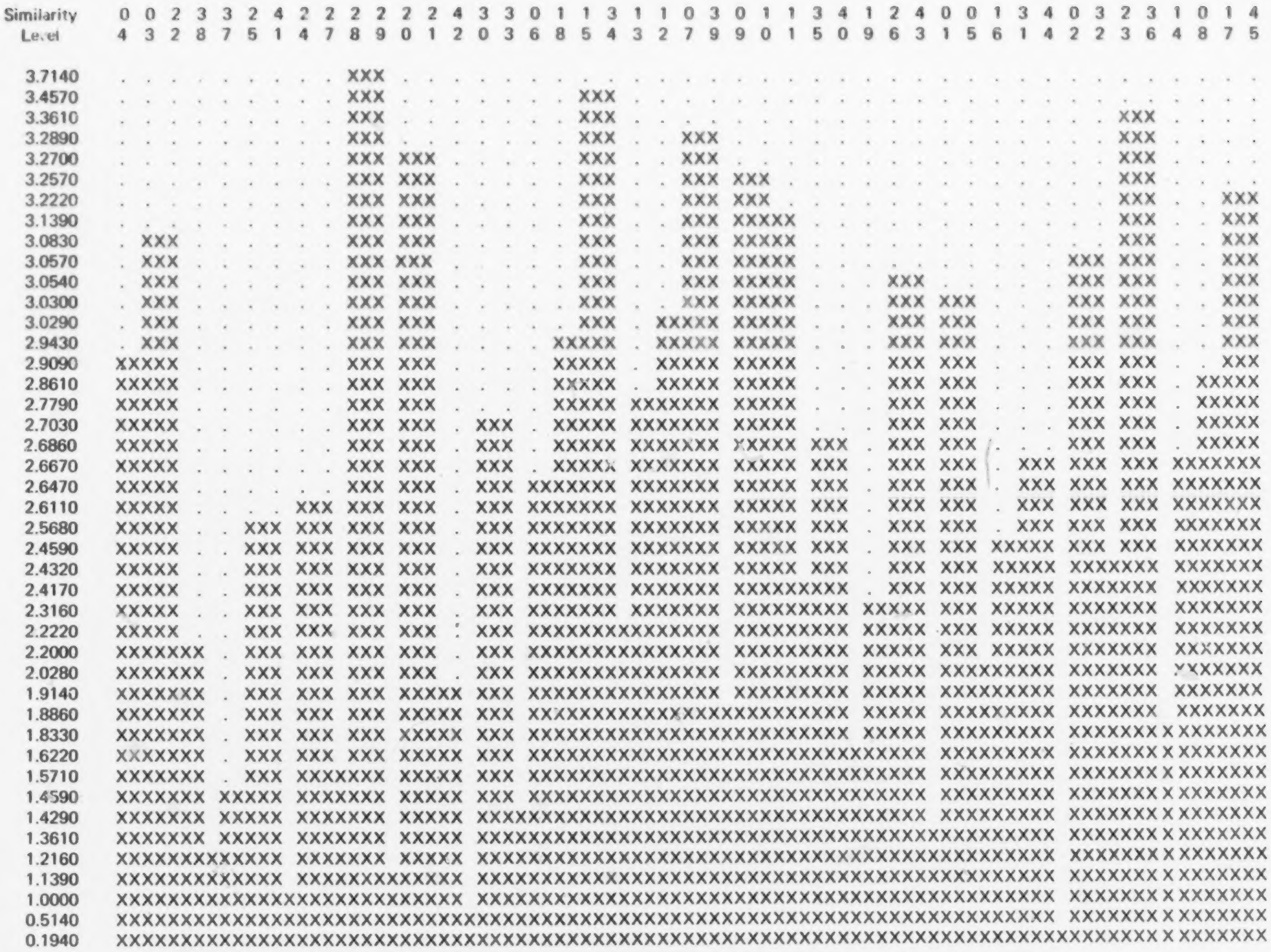

Figure 2—Computer-generated display of factors from analysis of QOL similarity ratings

Table 1

CHARACTERISTICS OF QUALITY OF LIFE

1. FEAR, ANXIETY
2. AGGRESSION, VIOLENCE, HOSTILITY
3. AMBITION
4. COMPETITION, COMPETITIVENESS
5. OPPORTUNITY, SOCIAL MOBILITY, LUCK
6. DOMINANCE, SUPERIORITY
7. MONEY, ACQUISITIVENESS, MATERIAL GREED
8. COMFORT, ECONOMIC WELL-BEING
9. NOVELTY, CHANGE, NEWNESS, VARIETY, SURPRISE
10. HONESTY, SINCERITY, TRUTHFULNESS
11. TOLERANCE, ACCEPTANCE OF OTHERS
12. STATUS, REPUTATION, RECOGNITION, PRESTIGE
13. FLATTERY, POSITIVE FEEDBACK, REINFORCEMENT
14. SPONTANEITY, IMPULSIVE, UNINHIBITED
15. FREEDOM
16. COMMUNICATION, INTERPERSONAL UNDERSTANDING
17. LONELINESS, IMPERSONALITY
18. DEPENDENCE, IMPOTENCE, HELPLESSNESS
19. POWER, CONTROL, INDEPENDENCE
20. GOOD HEALTH
21. FAILURE, DEFEAT, LOSING
22. INVOLVEMENT, PARTICIPATION
23. LOVE, CARING, AFFECTION
24. SELF-RESPECT, SELF-ACCEPTANCE, SELF-SATISFACTION
25. SELF-KNOWLEDGE, SELF-AWARENESS, GROWTH
26. SELF-CONFIDENCE, EGOISM
27. SECURITY
28. CHALLENGE, STIMULATION
29. PRIVACY
30. BOREDOM
31. ESCAPE, FANTASY
32. CONCERN, ALTRUISM, CONSIDERATION
33. HUMOR, AMUSING, WITTY
34. RELAXATION, LEISURE
35. SEX, SEXUAL SATISFACTION, SEXUAL PLEASURE
36. SUCCESS
37. ACHIEVEMENT, ACCOMPLISHMENT, JOB SATISFACTION
38. FAITH, RELIGIOUS AWARENESS
39. PEACE OF MIND, EMOTIONAL STABILITY, LACK OF CONFLICT
40. SUFFERING, PAIN
41. STABILITY, FAMILIARITY, SENSE OF PERMANENCE
42. INDIVIDUALITY
43. HUMILIATION, BELITTLEMENT
44. BEING NEEDED, FEELING OF BEING WANTED
45. CONFORMITY
46. SOCIAL ACCEPTANCE, POPULARITY
47. FRIENDSHIP, COMPANIONSHIP
48. EDUCATIONAL, INTELLECTUALLY STIMULATING

Table 2

CHARACTERISTICS OF EFFECTIVENESS OF HIGHER EDUCATION

1. SELF-AWARENESS, INCREASED SELF-UNDERSTANDING
2. MATURITY
3. ABILITY TO LEARN, LEARNING TO LEARN
4. CRITICAL ABILITY, QUESTIONING, DEVELOPMENT OF A CRITICAL ATTITUDE
5. HONESTY, PERSONAL INTEGRITY
6. CURIOSITY, DESIRE TO LEARN MORE
7. SOCIAL AWARENESS, AWARENESS OF OTHERS
8. SOCIAL CONTACTS, OPPORTUNITY TO MEET A VARIETY OF PEOPLE
9. TOLERANCE, DECREASE IN PREJUDICES
10. OPEN-MINDEDNESS
11. UNDERSTANDING OF OTHERS
12. CULTURAL AWARENESS
13. SOCIAL ISSUES, AWARENESS OF SOCIETAL PROBLEMS
14. SOCIAL SKILLS, ABILITY TO GET ALONG WITH OTHERS
15. BROADER OUTLOOK, NEW PERSPECTIVES, SCOPE
16. POLITICAL MATURITY, POLITICAL AWARENESS
17. COMMUNICATION SKILLS
18. KNOWLEDGE
19. DEHUMANIZATION, REPRESSIVE BUREAUCRACY
20. CAREER SKILLS, JOB COMPETENCE
21. SPECIALIZATION, NARROWING OF INTEREST TO OWN FIELD
22. REASONING ABILITIES, ABILITY TO THINK
23. SELF-CONFIDENCE, SELF-RELIANCE, INDEPENDENCE
24. IRRELEVANCY, PRESCRIBED EDUCATION, EDUCATIONAL TRIVIA
25. MOTIVATION, COMPETITIVENESS
26. IMPRACTICAL EDUCATION, DISILLUSIONMENT WITH EDUCATIONAL USEFULNESS
27. LOSS OF CREATIVITY, LOSS OF CREATIVE THINKING
28. GREATER CREATIVITY, EXPANDING THE IMAGINATION
29. LOSS OF IDEALISM, GENERAL DISSATISFACTION
30. RESPONSIBILITY
31. SEXUAL MATURITY, MORE LIBERAL SEXUAL ATTITUDE
32. POLITICAL DISILLUSIONMENT
33. NEW EXPERIENCES, EXPOSING TO NEW ACTIVITIES
34. NARROWING OF OUTLOOK, NARROWING OF VALUES
35. SELF-RESPECT, SELF-ACCEPTANCE, SELF-SATISFACTION
36. DEPENDENCY, PROLONGED YOUTH
37. SYNTHESIZING ABILITY, A SENSE OF ORGANIC RELATIONSHIP
38. AWARENESS OF ENVIRONMENT, RELATIONSHIP OF INDIVIDUAL WITH ENVIRONMENT
39. LIBERALIZATION OF SOCIAL AND POLITICAL VIEWS
40. PURPOSE IN LIFE, DEVELOPMENT OF LIFE GOALS
41. ELITISM, SOCIAL STATUS
42. INVOLVEMENT, POLITICAL INVOLVEMENT
43. CONCERN FOR SOCIETY, FELLOWMAN
44. RELATING TO OTHERS

Table 3

QOL FACTORS

1. Novelty, change, newness, variety, surprise; boredom; humorous, amusing, witty.

2. Peace of mind, emotional stability, lack of conflict; fear, anxiety; suffering, pain; humiliation, belittlement; escape, fantasy.

3. Social acceptance, popularity; needed, feeling of being wanted; loneliness, impersonality; flattering, positive feedback, reinforcement.

4. Comfort, economic well-being; relaxation, leisure; good health.

5. Dominance, superiority; dependence, impotence, helplessness; aggression, violence, hostility; power, control, independence.

6. Challenge, stimulation; competition, competitiveness; ambition; opportunity, social mobility, luck; educational, intellectually stimulating.

7. Self-respect, self-acceptance, self-satisfaction; self-confidence, egoism; security; stability, familiarity, sense of permanence; self-knowledge, self-awareness, growth.

8. Privacy.

9. Involvement, participation; concern, altruism, consideration.

10. Love, caring, affection; communication, interpersonal understanding; friendship, companionship; honesty, sincerity, truthfulness; tolerance, acceptance of others; faith, religious awareness.

11. Achievement, accomplishment, job satisfaction; success; failure, defeat, losing; money, acquisitiveness, material greed; status, reputation, recognition, prestige.

12. Individuality; conformity; spontaneity, impulsive, uninhibited; freedom.

13. Sex, sexual satisfaction, sexual pleasure.

Table 4

EDUCATIONAL FACTORS

1. Greater creativity, expanding the imagination; loss of creativity, loss of creative thinking
2. Broader outlook, new perspectives, scope, new experiences, exposing to new activities; knowledge; curiosity, desire to learn more.
3. Social awareness, awareness of others; awareness of environment, relationship of individual with environment; cultural awareness; social issues, awareness of societal problems.
4. Career skills, job competence; specialization, narrowing of interest to own field; elitism, social status.
5. Involvement, political involvement; isolation from real world, ivory-tower syndrome; dehumanization, repressive bureaucracy.
6. Self-awareness, increased self-understanding; honesty, personal integrity.
7. Loss of idealism, general dissatisfaction; political disillusionment.
8. Self-confidence, self-reliance, independence; self-respect, self-acceptance, self-satisfaction; maturity; sexual maturity, more liberal sexual attitude.
9. Tolerance, decrease in prejudices; open-mindedness; understanding of others; narrowing of outlook, narrowing of values; liberalization of social and political views.
10. Communication skill; relating to others; social contacts, opportunity to meet a variety of people; social skills, ability to get along with others.
11. Responsibility; concern for society, fellowman; political maturity, political awareness.
12. Motivation, competitiveness, purpose in life, development of life goals.
13. Dependency, prolonged youth.
14. Ability to learn, learning to learn; reasoning abilities, ability to think, critical ability, questioning, development of a critical attitude; synthesizing ability, a sense of organic relationship.
15. Impractical education, disillusionment with educational usefulness; irrelevancy, prescribed education, educational trivia.

Table 5

STRUCTURE OF STUDENT JUDGMENTS FOR SESSION THREE

QOL Group		EE Group	
Subgroup 1 Split 100 N = 20	Subgroup 2 Magnitude Estimation N = 19	Subgroup 3 Split 100 N = 19	Subgroup 4 7-pt rating scale N = 18
Part 1			
Label factors Rate self-confidence with each factor on a 1—5 pt scale Split 100 pts among the factors according to importance of each factor	Label factors Rate self-confidence with each factor on a 1—5 pt scale Rate the most important factor with 100 pts and rate the other factors proportionately	Label factors Rate self-confidence with each factor on a 1—5 pt scale Split 100 pts among the factors according to importance of each factor	Label factors Rate self-confidence with each factor on a 1—5 pt scale Rate the importance of each factor on a 1 to 7 pt scale
Part 2			
Revise ratings in light of group median and quartiles for each factor	Revise ratings in light of group median and ranges for each factor	Revise ratings in light of group median and quartiles for each factor	Revise ratings in light of group median and quartiles for each factor
Part 3			
Rate the relevance of each EE factor to each of the QOL factors on a 0 to 3 point scale	Rate the relevance of each EE factor of each of the QOL factors on a 0 to 3 point scale	Rate the relevance of each EE factor to each of the QOL factors on a 0 to 3 point scale	Rate the relevance of each EE factor to each of the QOL factors on a 0 to 3 point scale

QOL factors rated them as did the subjects who generated the EE factors. The design of this session is shown schematically in Table 5. As can be seen in Table 5, the QOL and EE groups were each split into two subgroups, and each subgroup used a different scaling procedure. During the third part of the session, the QOL and EE group both rated the relevance of each of the EE factors in terms of its contribution to each of the QOL factors. Otherwise, the groups were treated identically.

In order to familiarize the subjects with the factors they would be rating, they were instructed to look over the factors and devise a convenient word or phrase label for each. The subjects were then asked to rate their self-confidence in working with each of the factors on a 1 to 5-point scale. The factors they felt most confident about were to receive a 5 and those they felt least confident about were to receive a 1. Next the subjects were requested to rate the relative importance of each factor in terms of the contribution of that factor to the general topic. Using the split-100 (S-100) procedure, QOL Group 1 and EE Group 1 were instructed to distribute 100 points among the factors so that the most important factors received the most points. Using the magnitude-estimation (M-E) procedure QOL Group 2 was instructed to find the most important factor and give it a rating of 100. Then this group was asked to rate the other factors in terms of the most important one, so that a factor which they felt was half as important as the most important was to receive a rating of 50. The group using the rating scale (7-pt) procedure (EE Group 2) was asked to use a 1- to 7-point scale to rate the factors; a rating of 1 was to apply to "unimportant" factors, 4 to "moderately important" ones, and 7 to "extremely important" factors.

The subjects recorded their self-confidence ratings, factor labels, and importance ratings on preprinted response sheets. They also kept a record of their labels and importance ratings which they referred to during the second and third parts of the session.

During the second part of the session, the subjects again rated the importance of the factors with the same method which they used during the first part. This time, however, they were given information about the group's previous ratings on each of the factors. The QOL split-100, EE split-100, and EE 7-point rating scale groups were provided with the median and the first and third quartiles for each factor, while the QOL magnitude-estimation group was given ranges and medians which were normalized so that the largest median was 100. The instructions explained the meanings of the statistics and requested the subjects to consider this information in revising their estimates of the relative importance of each of the factors. The subjects were given 20 minutes to complete this part of the experiment.

During the third part of the session, the QOL and EE groups rated the "relevance" of each of the EE factors to each of the QOL factors. Each group received response sheets containing spaces along the top for each of the factor labels that they had developed during the first part of the session, and a list of QOL factors or EE factors, respectively, down the left margin. The subjects were briefly informed about the origin of the list of factors appearing on the left margin of their worksheets. Next, the subjects were instructed to familiarize themselves with these new lists of factors. Any questions concerning the list were answered by the experimenter. Finally, the subjects were required to rate the relevance of each of the EE factors to each of the QOL factors on a 0- to 3-point rating scale. Relevance was defined in the instructions as either "contributing to" or "means the same thing as." The 0- to 3-point scale was tied to the following adjectives:

3	Contributes strongly (or is pretty much the same)
2	Contributes moderately
1	Contributes slightly
0	Irrelevant

The subjects were allowed 30 minutes for the completion of this part of the session.

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